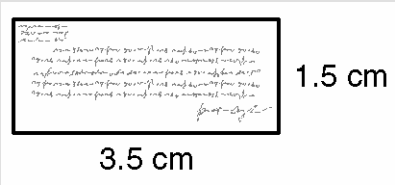
SAMPLE A – 2004 TAKS Released Test	
Student Expectation: N / A	
Find the slope of the line $2y = 8x - 3$.	
A $-\frac{3}{2}$	Confused y-intercept with slope.
B 4 *	**Correct:** Divided both sides of the equation by 2 and identified the slope.
C 8	Did not "solve for y" which required dividing both sides of the equation by 2.
D *Not here*	Various reasons.

Question 29 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.3(B) estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.	
Of the 32 students in Mrs. Zane's class, 25% have brown hair. Of the remaining students, 12.5% have red hair. How many students in Mrs. Zane's class have red hair?	
A 3 *	**Correct:** 25% of 32 = .25*32 = 8 students with brown hair so 24 students do not have brown hair. The number of "remaining students" is 24 so the number of students with red hair is 24*12.5% or 24*.125 = 3.
B 4	Did not subtract the number of students with brown hair. 32*.125 = 4
C 21	Subtracted 100% - 12.5% = 87.5% and multiplied 24*.875 = 21.
D Not here	Various reasons.

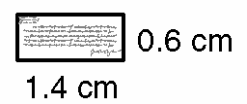
Question 16 – 2004 TAKS Released Test

Student Expectation: 10 – 8.6(A) Generate similar shapes using dilations including enlargements and reductions.

A copy machine can enlarge or reduce letters proportionately. Which would not be an enlargement or reduction of the letter below?



A

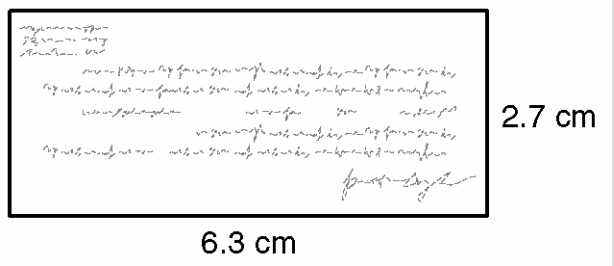


If the two letters are proportional then setting up a proportion and cross multiplying will result in numbers that are equal.

$\frac{1.5}{3.5} = \frac{0.6}{1.4}$ (1.5)1.4 = (3.5)0.6

2.1=2.1 answer A is proportional.

B

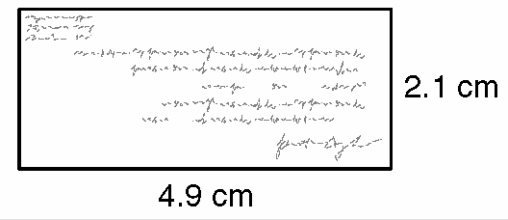


If the two letters are proportional then setting up a proportion and cross multiplying will result in numbers that are equal.

$\frac{1.5}{3.5} = \frac{2.7}{6.3}$ (1.5)6.3 = (3.5)2.7

9.45=9.45 answer B is proportional.

C

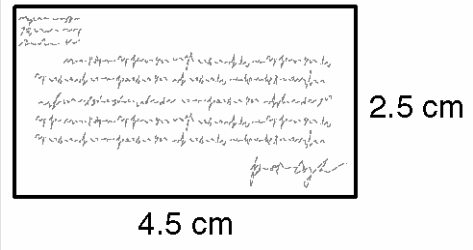


If the two letters are proportional then setting up a proportion and cross multiplying will result in numbers that are equal.

$\frac{1.5}{3.5} = \frac{2.1}{4.9}$ (1.5)4.9 = (3.5)2.1

7.35=7.35 answer C is proportional.

D *



Correct:
If the two letters are proportional then setting up a proportion and cross multiplying will result in numbers that are equal.

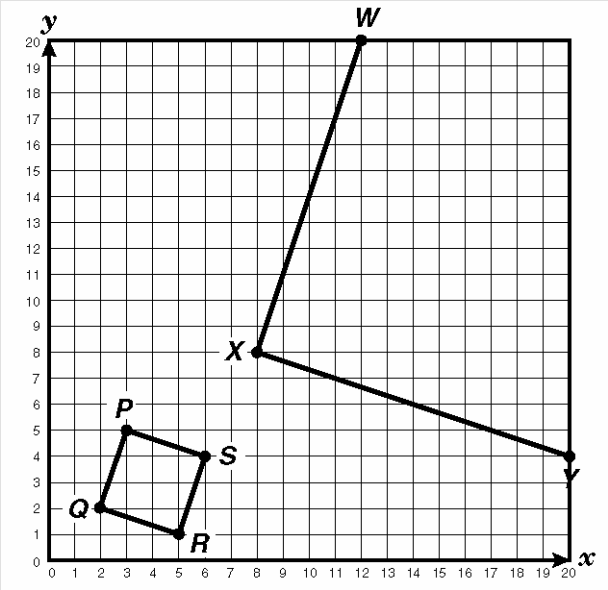
$\frac{1.5}{3.5} = \frac{2.5}{4.5}$ does (1.5)4.5 = (3.5)2.5?

6.75=8.75 answer D is **not** proportional.

Question 10 – 2004 TAKS Released Test

Student Expectation: 10 – 8.6(B) Graph dilations, reflections, and translations on a coordinate plane.

At what coordinates should vertex Z be placed to create a quadrilateral WXYZ that is similar to quadrilateral PQRS?

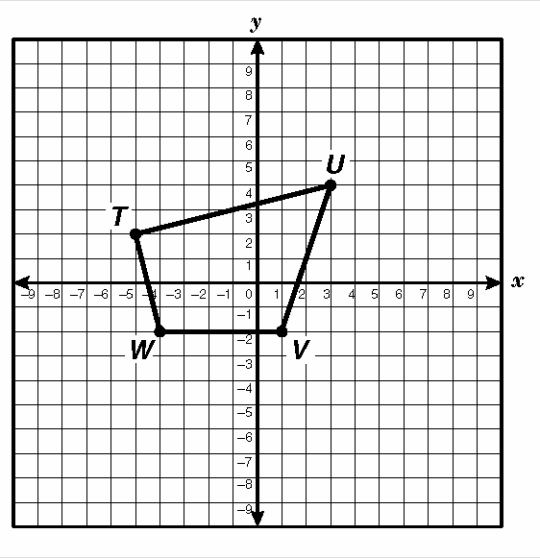


A (24, 16) *	**Correct:** Quadrilateral WXYZ is 4 times larger than quadrilateral PQRS. Point S (6,4) is mapped to point Z so multiplying (6,4) by 4 results in point Z (24,16).
B (24, 24)	Calculated the x coordinate correctly at 24 and assumed the y coordinate is also 4 units higher than the top of the graph.
C (20, 20)	Chose the maximum point on the graph probably not realizing that the graph extends indefinitely.
D (16, 24)	Reversed x and y coordinates.

Question 28 – 2004 TAKS Released Test

Student Expectation: 10 – 8.6(B) Graph dilations, reflections, and translations on a coordinate plane.

If quadrilateral $TUVW$ is reflected across the x-axis to become quadrilateral $T'U'V'W'$, what will be the coordinates of W'?

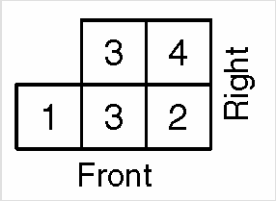


A $(-4,-2)$	This is the location of point ***W.***
B $(-4,2)$ *	**Correct:** Point ***W*** is (-4, -2). Reflecting across the x-axis changes the sign of the y-coordinate.
C $(2,-4)$	Reversed the x and y coordinates.
D $(4,-2)$	Reflected ***W*** across the y-axis.

Question 56 – 2004 TAKS Released Test

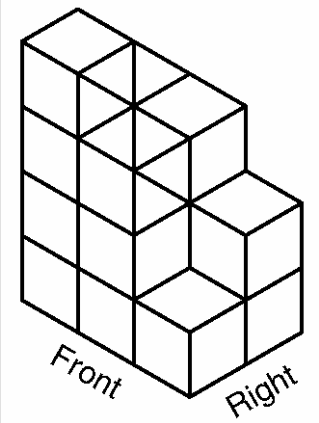
Student Expectation: 10 – 8.7(A) Draw solids from different perspectives.

The drawing shows the top view of a structure built with cubes as well as the number of cubes in each column of the structure.



Which 3-dimensional view represents the same structure?

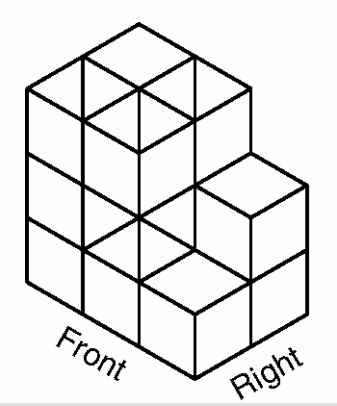
A



The top view of the structure in answer choice A is:

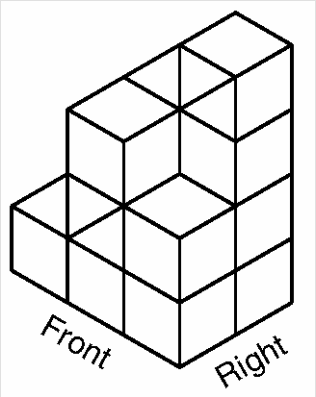
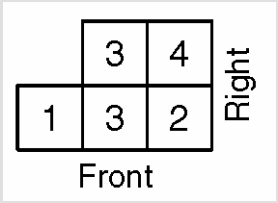
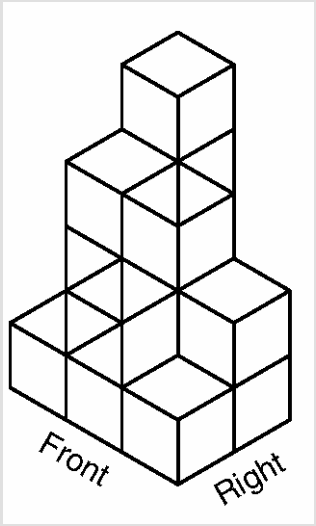
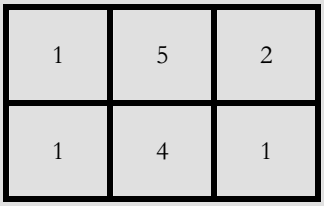
3	3	2
4	3	1

B



The top view of the structure in answer choice B is:

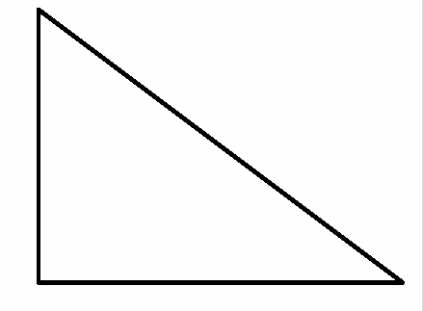
3	3	2
3	3	1

C * 	**Correct:** 
D 	The top view of the structure in answer choice D is: 

Question 9 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.7(B) Use geometric concepts and properties to solve problems in fields such as art and architecture.	
The blueprint dimensions for a newly constructed house are proportional to the house's actual dimensions. On the blueprints the house's foundation measures 75 centimeters long by 40 centimeters wide. If the house's foundation measures 15 meters long, what is the foundation's actual width?	
A 8 m *	**Correct**. Set up the proportion $\frac{length(blueprint)}{width(blueprint)} = \frac{length(actual)}{width(actual)}$ $\frac{75}{40} = \frac{15}{w}$ so $75w = 40*15$ or $75w = 600$ and $w = \frac{600}{75}$ therefore $w = 8$m.
B 28.1 m	Set up the proportion incorrectly. $\frac{40}{75} = \frac{15}{w}$ or $\frac{75}{40} = \frac{w}{15}$
C 50 m	Random answer in numerical order with the other answer choices or an estimation of the perimeter of the house.
D 200 m	Set up the proportion incorrectly. $\frac{40}{15} = \frac{w}{75}$ or $\frac{15}{40} = \frac{75}{w}$

Question 41 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.7(B) Use geometric concepts and properties to solve problems in fields such as art and architecture;	
Near the downtown area of a city, there is a vacant triangular plot of land with sides that measure 22 feet, 27 feet, and 17 feet. If the city council decides to plant an oak tree in the corner with the smallest angle, where should the tree be planted?	
A In the corner opposite the side that is 17 feet *	**Correct:** The angle opposite the shortest side is the smallest angle.
B In the corner opposite the side that is 22 feet	If the student sketched a triangle to use as an aid then the triangle was not sketched to scale.
C In the corner opposite the side that is 27 feet	If the student sketched a triangle to use as an aid then the triangle was not sketched to scale.
D In the center of the triangular plot	The student did not read the problem.

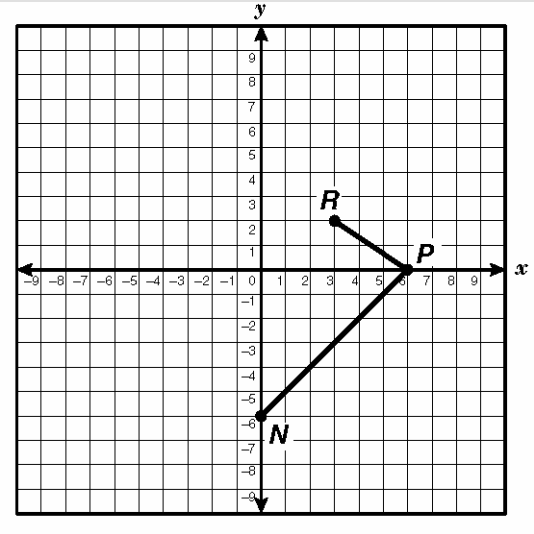
Question 50 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.7(B) Use geometric concepts and properties to solve problems in fields such as art and architecture.	
Mr. Harrison wants to calculate the cost of buying a carpet to cover his rectangular living room floor. He knows the cost per square foot of carpet, and he knows the length, width, and height of the living room. Which geometric formula should Mr. Harrison use to determine the cost of the carpet he needs?	
A $c^2 = a^2 + b^2$	The student misinterpreted the problem as requiring the Pythagorean Theorem.
B $V = Bh$	The student confused the formula for the volume with the formula for the area.
C $A = lw$ *	**Correct:** The students understands that buying a carpet requires knowledge of the area of the room and knows how to get the area.
D $P = 2l + 2w$	The student confused the formula for the perimeter with the formula for the area.

Question 36 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.7(C) Use pictures or models to demonstrate the Pythagorean Theorem.	
Look at the right triangle shown below. Which of the following could be the triangle's dimensions? 	
A 12, 16.8, 18.2	Pythagorean Theorem $12^2 + 16.8^2 \neq 18.2^2$
B 5.4, 10.6, 16	Pythagorean Theorem $5.4^2 + 10.6^2 \neq 16^2$
C 1.2, 1.6, 2 *	**Correct:** Pythagorean Theorem $1.2^2 + 1.6^2 = 2^2$
D 8, 10, 12.5	Pythagorean Theorem $8^2 + 10^2 \neq 12.5^2$

Question 37 – 2004 TAKS Released Test

Student Expectation: 10 – 8.7(D) Locate and name points on a coordinate plane using ordered pairs of rational numbers.

A portion of isosceles trapezoid *NPRT* is shown on the grid below.



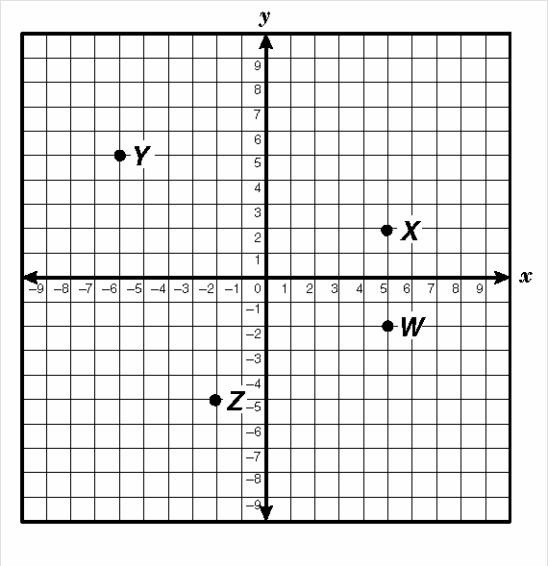
At what coordinates should vertex *T* be placed to make *NP* parallel to *RT* in order to complete isosceles trapezoid *NPRT*?

A (− 2, − 2)	The slope of segment NP is 1 so the slope of RT must also be 1. Point R (3, 2) answer choice A (-2, -2). Use the slope formula $\frac{-2-2}{-2-3}=\frac{-4}{-5}$ which is not 1.
B (− 3, − 2)	The student reversed the coordinates. The slope of segment NP is 1 so the slope of RT must also be 1. Point R (3, 2) answer choice B (-3, -2). Use the slope formula $\frac{-2-2}{-3-3}=\frac{-4}{-6}$ which is not 1.
C (− 2, − 3) *	**Correct:** Extending the sides of an isosceles trapezoid will eventually create an isosceles triangle. The base (line segment NP) is bisected by the line y = -x which means that N is a reflection of P across the line y = -x therefore T must be a reflection of R across the same line. Another method is to calculate the slope of segment NP (m = 1) so RT must have a slope of 1. R (3, 2) and answer choice C (-2, -3) the slope between the two points is $\frac{-3-2}{-2-5}=1$.
D (− 4, − 5)	Answer choice D will create a segment RT parallel to segment NP but the angle PNT is not close to angle NPR.

Question 48 – 2004 TAKS Released Test

Student Expectation: 10 – 8.7(D) Locate and name points on a coordinate plane using ordered pairs of rational numbers.

Which point on the grid satisfies the conditions $x \geq 5$ and $y < -1$?

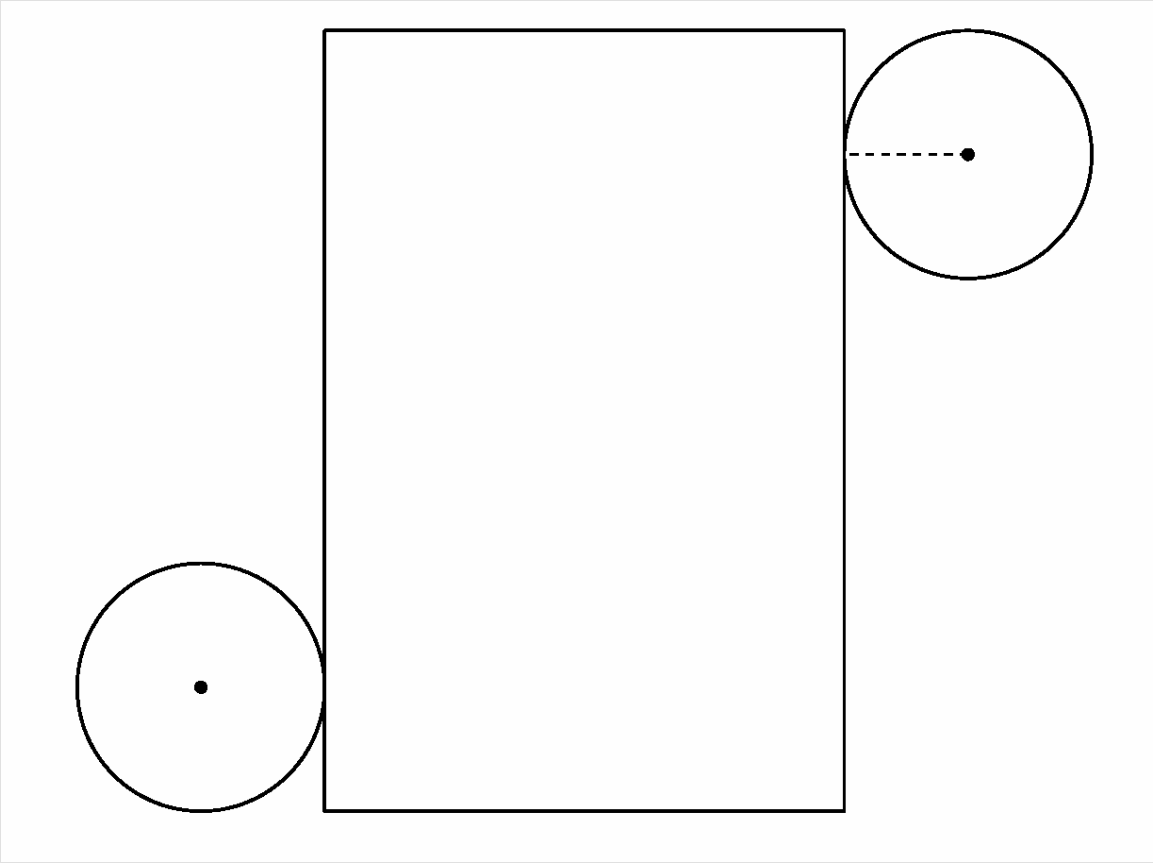


A *W* *	**Correct:** The coordinates of point *W* are x = 5 and y = -2. Substituting these values in to the conditions $x \geq 5$ and $y < -1$, the results are $5 \geq 5$ and $-2 < -1$. Both statements are true.
B *X*	The coordinates of point *X* are x = 5 and y = 2. Substituting these values in to the conditions $x \geq 5$ and $y < -1$, the results are $5 \geq 5$ and $2 < -1$. The second statement is false, 2 is not less than -1.
C *Y*	The coordinates of point *Y* are x = -6 and y = 5. Substituting these values in to the conditions $-6 \geq 5$ and $5 < -1$, Both statements are false.
D *Z*	Students choosing answer choice D reversed the x and y coordinates.

Question 38 – 2004 TAKS Released Test

Student Expectation: 10 – 8.8(A) Find surface area of prisms and cylinders using concrete models and nets (two-dimensional models).

The net of a cylinder is shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the cylinder to the nearest tenth of a centimeter.



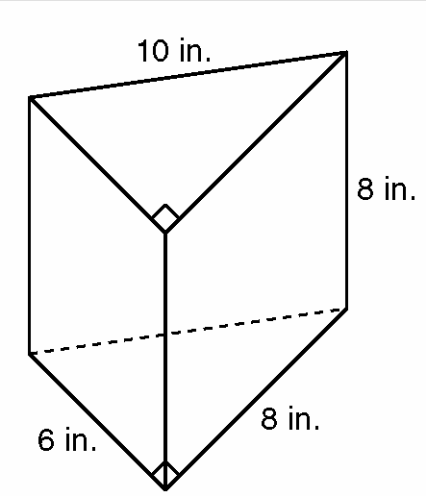
Which of the following best represents the total surface area of this cylinder?

A $142 cm^2$	Doubled the area of the rectangle.
B $93 cm^2$ *	**Correct:** The dimension of the rectangle and approximately 7cm X10.5cm and the radius of the circle is approximately 1.6 cm. The area of the rectangle is 7 x 10.5 = 73.5 square cm. The area of one circle is $\pi 1.6^2 = 8.04$. Total area of both circles is 16.08 square cm. Total area is 73.5 + 16.08 = 89.58 square cm. which closest to answer choice B.
C $23 cm^2$	Found the perimeter of the rectangle and the circumference of both circles in inches.
D $14 cm^2$	Surface area of the cylinder in square inches.

Question 27 – 2004 TAKS Released Test

Student Expectation: 10 – 8.8(B) Connect models to formulas for volume of prisms, cylinders, pyramids, and cones.

A triangular prism is shown below.



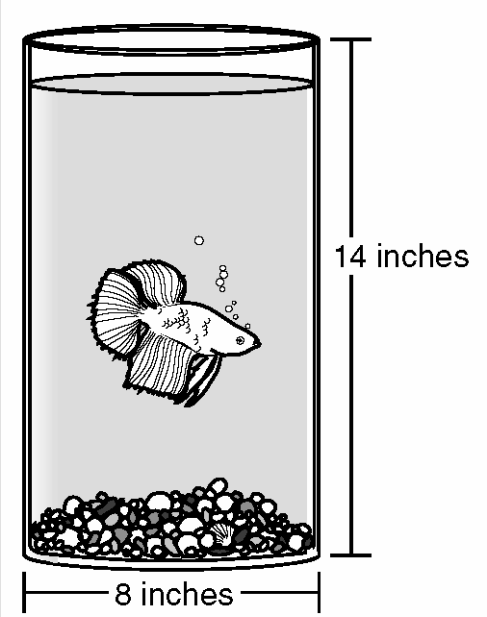
What is the volume of this triangular prism?

A $192\,in.^3$ *	**Correct:** The volume is calculated using the formula V = Bh where B is the area of the base. The base is a right triangle (6 by 8) so $B = \frac{1}{2}(6)(8)$, B = 24. The volume of the triangular prism is 24*8 = 192 cubic inches.
B $240\,in.^3$	Calculated the base correctly but multiplied it by 10 inches instead of the height of 8 inches.
C $384\,in.^3$	Calculated the base as 48 and did not take half of the base as shown in the diagram.
D $480\,in.^3$	Calculated the base as 48 and did not take half of the base as shown in the diagram. The second mistake was multiplying by 10 inches instead of the height of 8 inches.

Question 30 – 2004 TAKS Released Test

Student Expectation: 10 – 8.8(B) Connect models to formulas for volume of prisms, cylinders, pyramids, and cones.

Steven has a cylindrical fish tank with a diameter of 8 inches and a height of 14 inches. He placed some rocks that took up 50 cubic inches at the bottom of the tank. Then he filled the tank with springwater to 2 inches from the top. Which is the best strategy for determining the volume of water the fish has for swimming?

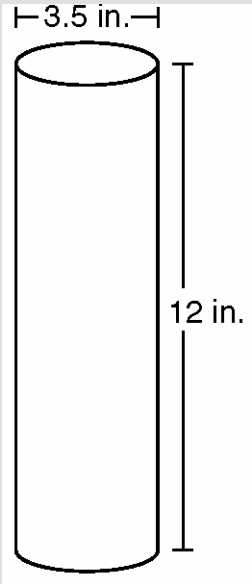


A $\pi(8)^2(14)-50$	Two mistakes. 1.) The radius is 4 inches and not 8 so $\pi(8)^2$ should be $\pi(4)^2$. 2.) The height of the water is (14-2) inches.
B $\pi(8)^2(14-2)-50$	One mistake. The radius is 4 inches and not 8 so $\pi(8)^2$ should be $\pi(4)^2$
C $\pi(4)^2(14-2)-50$ *	**Correct:** The volume of the cylinder is V = Bh where B is the base $(B=\pi r^2)$. The diameter is 8 so the radius is 4. The base is $\pi(4)^2$. The height of the cylinder is 14 inches and the height of the water is h = (14-2) inches. The volume of the water is $V=\pi(4)^2(14-2)$. Finally subtract the volume of the rocks (50 cubic inches).
D $\pi(14-2)^2(4)-50$	Reversed the height (14-2) and the radius (4) in the formula.

Question 13 – 2004 TAKS Released Test

Student Expectation: 10 – 8.8© Estimate answers and use formulas to solve application problems involving surface area and volume.

The owners of Neatly Packaged Company make a cylindrical container that has the dimensions shown below.



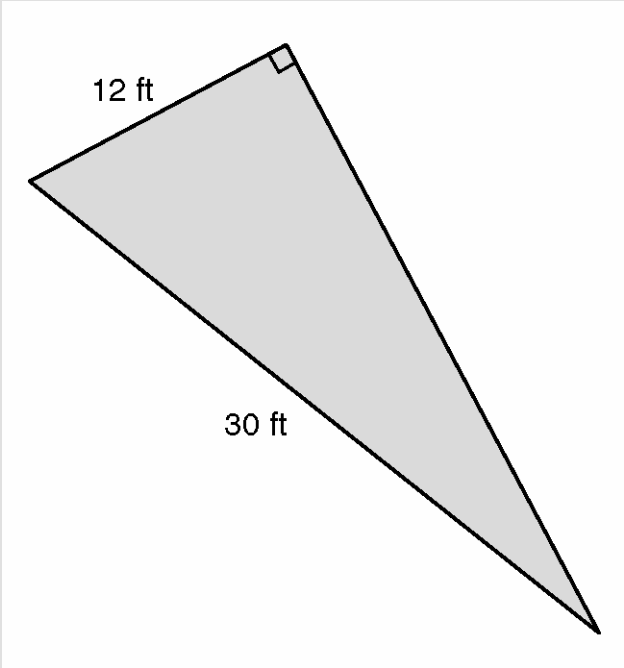
What is the approximate lateral surface area available for the package label?

A $131.95 in.^2$ *	**Correct:** In the formula chart provided with the exam, the formula for lateral surface area of a cylinder is listed as $S = 2\pi rh$. In the diagram, 3.5 inches is a diameter so 3.5/2 or 1.75 inches is the radius and 12 is the height. The lateral surface area of the cylinder in the diagram is 2*3.14*1.75*12 = 131.88 which is approximately 131.95
B $151.19 in.^2$	This is the total surface area of the cylinder.
C $263.89 in.^2$	Incorrect because 3.5 is not the radius. In the figure 3.5 is shown as the diameter so the radius is 1.75.
D $115.45 in.^2$	This is the volume of the cylinder.

Question 15 – 2004 TAKS Released Test

Student Expectation: 10 – 8.9(A) Use the Pythagorean Theorem to solve real-life problems.

Mrs. Cheung hired a landscaping service to plant a row of bushes around her triangular backyard.



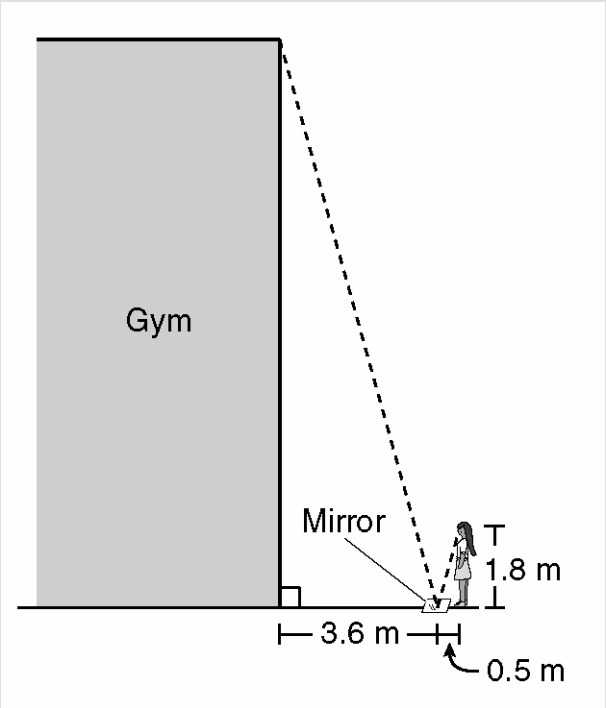
If the bushes must be planted 3 feet apart, approximately how many bushes are needed for Mrs. Cheung's backyard?

A 23 *	**Correct:** Used the Pythagorean Theorem correctly given a = 12 and c = 30. $12^2 + b^2 = 30^2$ or $b^2 = 30^2 - 12^2$. $b = \sqrt{900 - 144}$ b = 27.5ft The perimeter of the backyard is 12 feet + 27.5 feet + 30 feet = 69.5 feet. Bushes are planted every 3 feet so 69/3 = 23 bushes.
B 25	Did not set up the Pythagorean Theorem correctly. In the diagram, using 30 feet as side b instead of side c will result in a perimeter of 74.3 feet. Bushes are planted every 3 feet so 74.3/3 = 25 bushes.
C 28	Calculated the length of side b.
D 32	Calculated the length of side C of a right triangle given side A=12 and side B=30.

Question 42 – 2004 TAKS Released Test

Student Expectation: 10 – 8.9 (B) Use proportional relationships in similar shapes to find missing measurements.

To estimate the height of her school's gym, Nicole sights the top of the gym wall in a mirror that she has placed on the ground. The mirror is 3.6 meters from the base of the gym wall.



Nicole is standing 0.5 meter from the mirror, and her height is about 1.8 meters. What is the height of the gym wall?

A 1 m	Set up the proportion incorrectly $\frac{1.8}{0.5}=\frac{3.6}{h}$.
B 5.9 m	Added the three numbers in the diagram.
C 7.2 m	Set up the problem incorrectly $\frac{3.6}{0.5}$.
D 12.96 m *	**Correct:** The proportion is $\frac{0.5}{1.8}=\frac{3.6}{h}$ or 0.5h = 1.8(3.6) so 0.5h = 6.48. Divide both sides of the equation by 0.5 to get 12.96 m.

Question 43 – 2004 TAKS Released Test

Student Expectation: 10 – 8.11(B) Use theoretical probabilities and experimental results to make predictions and decisions.

The table below shows the results of a number cube being rolled.

Outcome	Frequency
1	6
2	2
3	2
4	3
5	2
6	0

Based on these results, what is the experimental probability of rolling a 1?

A 2.5%	Chose the first answer that contained a 2 and a 5.
B $\frac{1}{6}$	Chose the expected probability.
C $\frac{2}{5}$ *	**Correct:** $\frac{6}{6+2+2+3+2} = \frac{6}{15} = \frac{2}{5}$
D 0.6	Calculated the experimental probability of not rolling a 1.

Question 34 – 2004 TAKS Released Test

Student Expectation: 10 – 8.12(A) Select the appropriate measure of central tendency to describe a set of data for a particular purpose.

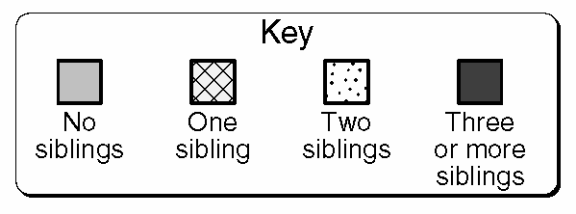
Nicholas earned the following grades on his science exams: 83, 88, 87, and 83. If Nicholas scores a 90 on his last exam, which measure of central tendency will give him the highest score?

A Mode	Lacking the vocabulary for measure of central tendency.
B Median *	**Correct:** In order from least to greatest, the scores are 83, 83, 87, 88, 90. Mode is the number that occurs most often = 83. Median is the middle number = 87. Range is high score – low score = 7. Mean is $\frac{83+83+87+88+90}{5} = 86.2$
C Range	Lacking the vocabulary for measure of central tendency.
D Mean	Lacking the vocabulary for measure of central tendency.

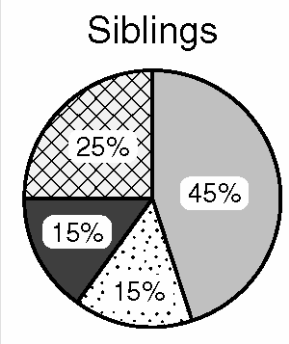
Question 3 – 2004 TAKS Released Test

Student Expectation: 10 – 8.12© construct circle graphs, bar graphs, and histograms, with and without technology.

Of the 800 students at a local high school, 200 students have no siblings, 318 students have one sibling, 160 students have two siblings, and the rest of the students have three or more siblings. Use the key below to find the circle graph that best represents this information.

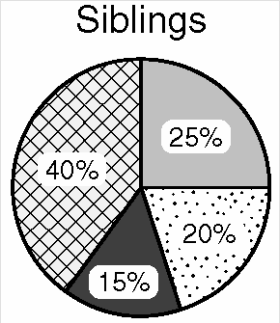


A



Students choosing this answer do not know how to calculate percentages.

B *



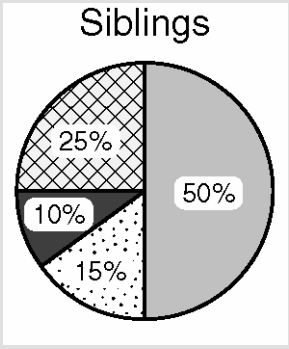
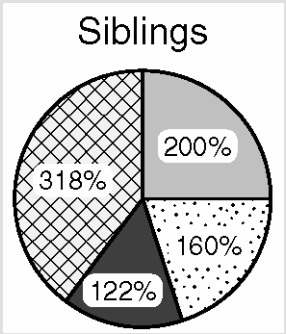
Correct:

No siblings $\frac{200}{800} = 25\%$

One sibling $\frac{318}{800} = 39.75\%$ or about 40%

Two siblings $\frac{160}{800} = 20\%$

Three or more siblings $\frac{122}{800} = 15.25\% \approx 15\%$

C  	Students choosing this answer do not know how to calculate percentages.
D  	The student put the number of families in the circle graph rather than the percent of families.

Question 2 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.14(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.	
Mr. Harmon is planning to sell his house and wants to paint all the rooms. A can of paint costs $12.95 plus 7.75% sales tax and covers about 476 square feet. What other information is needed to determine the number of cans of paint Mr. Harmon needs to purchase?	
A The number of rooms in the house	Students choosing this answer were convinced that the phrase "paint all the rooms" in the first sentence of the problem is important. However there is no information about the size of the rooms.
B The area in square feet to be painted *	**Correct:** If one can of paint covers about 476 square feet, it is necessary to know the area to be painted to calculate the number of cans needed.
C The total cost of each can of paint	Cost is not relevant to the question asked.
D The name of the store where Mr. Harmon will buy the paint	Not relevant to the question asked.

Question 7 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.14(B) Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	
The school drama club plans to attend a Shakespeare festival in 6 weeks. The total cost per person is $185.75. The club has $296 in its account and will divide the money equally among the 8 members who attend the festival. Troy is planning to attend the festival and has already saved $55. How much more money does Troy need in order to cover his cost to attend the festival?	
A $93.75 *	**Correct:** From the $296 in the club account, each member will receive 296/8 = 37 dollars. Troy has saved $55, so he has a total of 55+37= $92. The trip will cost a total of $185.75. Troy has $92. 185.75-92= $93.75.
B $110.25	Subtracted The amount of money the club has ($296) and the cost of the trip ($185.75).
C $148.75	Did not subtract the $55 dollars Troy has saved.
D Not here	Various reasons

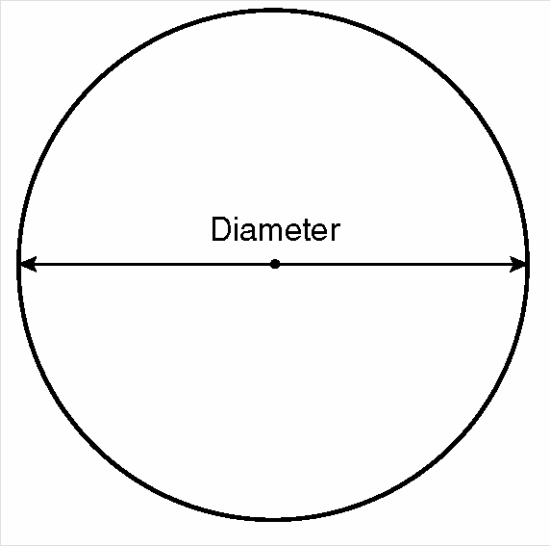
Question 31 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.14(B) Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	
In the system of equations $4x + 2y = 10$ and $3x + 7y = -18$, which expression can be correctly substituted for y in the equation $3x + 7y = -18$?	
A $10 - 2x$	Chose the correct equation and began the problem well but forgot to divide the 10 by 2. $\frac{2y}{2} = \frac{10-4x}{2}$
B $10 + 2x$	Two mistakes. 1.) Added 4x to both sides of the equation instead of subtracted. 4x – (4x) + 2y = 10 – (4x). 2.) Forgot to divide the 10 by 2. $\frac{2y}{2} = \frac{10-4x}{2}$
C $5 - 2x$ *	**Correct:** Use the equation 4x + 2y = 10 and solve for y. 2y = 10 - 4x $\frac{2y}{2} = \frac{10-4x}{2}$ so y = 5 – 2x
D $5 + 2x$	Added 4x to both sides of the equation instead of subtracted. 4x – (4x) + 2y = 10 – (4x).

Question 5 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.14© select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.	
A rectangle has an area of 144 square inches and a perimeter of 50 inches. What are the dimensions of the rectangle?	
A 10 in. by 15 in.	Students chose answer A because the perimeter is 50 inches, but 10 in. * 15 in. = 150 square inches. Answer choice A is eliminated.
B 9 in. by 16 in. *	**Correct:** The algebraic solution to the problem is: 1. Set up a system of two equations involving (a) area and (b) perimeter. Equation (a) $xy = 144$ and equation (b) $2x + 2y = 50$ 2. Select one of the equations and solve for either variable. Equation (a) is chosen for algebraic manipulation. $xy = 144$ or $y = \frac{144}{x}$ 3. Substitute $\frac{144}{x}$ for *y* in equation (b) $2x + 2\left(\frac{144}{x}\right) = 50$. 4. Clean up the equation by multiplying both sides by *x*. $x(2x + 2\frac{144}{x}) = x(50)$ so $2x^2 + 2(144) = 50x$ or $2x^2 + 288 = 50x$. 5. Set the equation equal to zero to set up for factoring. $2x^2 - 50x + 288 = 0$ 6. Divide both sides by 2 to simplify the numbers for factoring. $\frac{2x^2 - 50x + 288}{2} = \frac{0}{2}$ so $x^2 - 25x + 144 = 0$ 7. Factor $(x - 9)(x - 16) = 0$ the solutions are $x = 9$ and $x = 16$.
C 8 in. by 18 in.	The area is 144 square inches, but the perimeter is (2)8 in. + (2)18 in. = 52 inches. Answer choice C is eliminated.
D 4 in. by 36 in.	The area is 144 square inches, but the perimeter is (2)4 in. + (2)36 in. = 80 inches. Answer choice D is eliminated.

Question 19 – 2004 TAKS Released Test

Student Expectation: 10 – 8.15(A) Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.

A circle and its diameter are shown below.



The value of π is the result of which of the following ratios comparing a circle's circumference to its diameter?

A $\frac{C}{r}$	Confused radius and diameter.
B $\frac{d}{C}$	This is the reciprocal of π
C $\frac{r^2}{C}$	Confused the value of π with the formula for the area of a circle.
D $\frac{C}{d}$ *	**Correct:** Understands that the value of π is the ratio of the circumference to its diameter.

Question 53 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.15(A) Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.	
Shannon has spent $850 on gasoline and repairs for her car in the last 6 months. Of this total, she spent $300 on repairs. The gasoline she purchased cost $1.29 per gallon. Which of the following can be used to determine how many gallons of gas, *g*, Shannon has bought within the last 6 months?	
A $1.29g - 300 = 850$	Students choosing answer "A " may understand that solving for g will require subtracting the amount of money spent on repairs. However, the equation must be written before any mathematical operations.
B $1.29g + 300 = 850$ *	**Correct:** The amount of money spent on gasoline is 1.29 times the number of gallon the bought (1.29g). The amount of gasoline plus the amount of repairs (1.29g + 300) is 850.
C $1.29 - 300g = 850$	Students choosing answer C do not understand how to write a term to describe total cost when a unit price is provided. The second mistake is attempting to find a difference between the gasoline and the cost of the repairs when they should be summed.
D $1.29 + 300g = 850$	Students choosing answer D do not understand how to write a term to describe total cost when a unit price is provided.

Question 11 – 2004 TAKS Released Test	
Student Expectation: 10 – 8.16(A) Make conjectures from patterns or sets of examples and nonexamples.	
Linda owns a set of seven wrenches. The wrenches come in consecutive increments of $\frac{1}{8}$ inch. Linda has misplaced a wrench. The sizes she has are $\frac{1}{8}$ inch, $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, $\frac{5}{8}$ inch, $\frac{3}{4}$ inch, and $\frac{7}{8}$ inch. Which size wrench is missing from Linda's set?	
A $\frac{3}{16}$ in.	Correct numerator but the denominator is not in an increment of 1/8.
B $\frac{3}{8}$ in. *	**Correct:** Fractions in parentheses are converted to eighths and 3/8 is missing. $\left(\frac{1}{8}\right),\frac{1}{4}=\left(\frac{2}{8}\right),\frac{1}{2}=\left(\frac{4}{8}\right),\left(\frac{5}{8}\right),\frac{3}{4}=\left(\frac{6}{8}\right),\left(\frac{7}{8}\right)$
C $\frac{11}{16}$ in.	Random answer in numerical order of the other answer choices.
D Not here	Various reasons

Question 47 – 2004 TAKS Released Test

Student Expectation: 10 – 8.16(A) Make conjectures from patterns or sets of examples and nonexamples.

A pattern exists as a result of raising *i*, an imaginary number, to *n*, an integer greater than or equal to 1.

Powers of i

i^n $(n \geq 1)$	Solution
i^1	$\sqrt{-1}$
i^2	-1
i^3	$-i$
i^4	1
i^5	$\sqrt{-1}$
i^6	-1

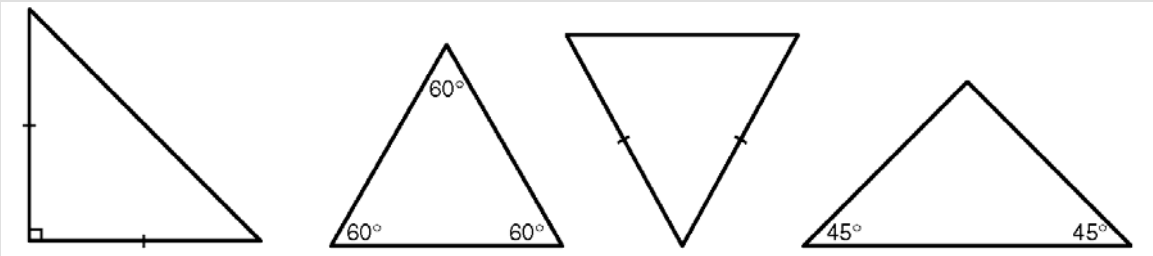
Based on the table, which of the following best represents *i* raised to the 16th power?

A $\sqrt{-1}$	Miscounted using the values in the table.
B -1	Miscounted using the values in the table.
C $-i$	Miscounted using the values in the table.
D 1 *	**Correct:** From the table if $i^4 = 1$, then $i^{16} = i^4 \times i^4 \times i^4 \times i^4$ or $1 \times 1 \times 1 \times 1 = 1$.

Question 22 – 2004 TAKS Released Test

Student Expectation: 10 – 8.16(B) Validate his/her conclusions using mathematical properties and relationships.

Which statement about the triangles below is true?



A All the triangles are scalene.	Students choosing this answer do not know the definition of scalene because none of the triangles are scalene.
B All the triangles are equiangular.	Only the triangle with three 60-degree angles is equiangular.
C All the triangles are equilateral.	Only the triangle with three 60-degree angles is equilateral.
D All the triangles are isosceles. *	**Correct:** All triangles show at least two sides the same length.

Question 23 – 2004 TAKS Released Test	
Student Expectation: 10 – A.B1(A) The student describes independent and dependent quantities in functional relationships.	
The volume of a rectangular prism is given by the function $V = lwh$. Which statement is true?	
A The volume of the prism depends on the product of only the length and the width.	The formula shows that the volume of the prism depends on the product of the length, width, **and height.**
B The volume of the prism depends on the product of only the length and the height.	The formula shows that the volume of the prism depends on the product of the length, **width**, and height.
C The volume of the prism depends on the product of the length, the width, and the height. *	**Correct:** The formula for the volume of a prism is the product of the length, width, and height.
D The volume of the prism depends on the product of only the width and the height.	The formula shows that the volume of the prism depends on the product of the **length**, width, and height.

Question 35 – 2004 TAKS Released Test

Student Expectation: 10 – A.B1(B) The student gathers and records data, or uses data sets, to determine functional (systematic) relationships between quantities.

Troy borrowed money from his father so that he could buy a used car. The table shows the remaining balance, b, of Troy's loan after each payment.

Troy's Loan Balance

Number of Payments, p	Loan Balance, b
1	$3910
2	$3685
3	$3460
4	$3235
5	$3010
6	$2785

Which function can be used to describe this relationship?

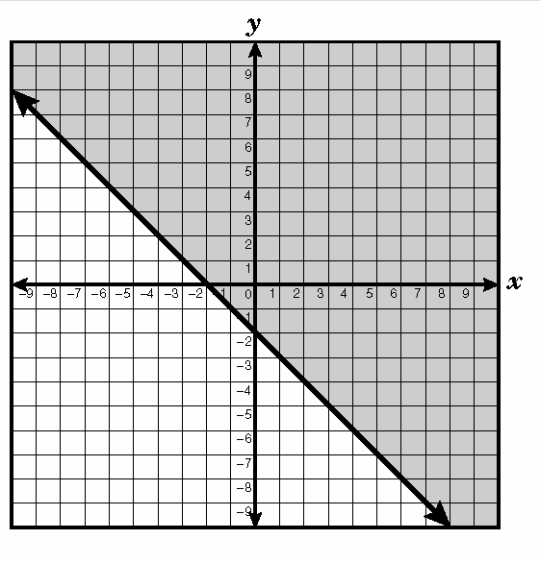
A $b = 3910 + 225p$	Did not calculate the amount borrowed. $3910 is the balance after the first payment. The amount borrowed is $3910 + $225 = $4135.
B $b = 4135 - 225p$ *	**Correct:** From the table, the difference between the loan balances is $225 which means Troy is paying $225 each payment. After payment 1 he owes $3910 so $3910 + $225 = $4135 is the amount Troy borrowed. The term $225p$ is used to calculate the amount of money paid for the number of payments (p). The balance b is the difference in the amount borrowed 4135 and the amount paid $225p$.
C $b = 2785 + 225p$	Student chose the last number in the balance column and added the payment to get the next number on the list.
D $b = 3685 - 225p$	Subtracted 225 from the first number on the list.

Question 49 – 2004 TAKS Released Test	
Student Expectation: 10 – A.B1(C) The student describes functional relationships for given problem situations and writes equations or inequalities to answer questions arising from the situations.	
A candy company sells chocolate-covered cherries in a box. The empty box weighs 4.2 ounces. Each piece of candy weighs at least 1.8 ounces. Which inequality best describes the total weight in ounces, w, of a box of chocolate-covered cherries in terms of c, the number of candies in the box?	
A $w \geq 1.8c + 4.2$ *	**Correct:** The material for the box weighs 4.2 ounces and each candy is 1.8 ounces. Multiplying the weight of each candy by the number of candies (1.8c) and adding the weight of the box 4.2, (1.8c+4.2) will be the weight of the box with the candies.
B $w \geq 1.8c - 4.2$	Misinterpreted the problem and subtracted the weight of the box.
C $w \geq 4.2c + 1.8$	Chose the first number in the problem (4.2) to be multiplied with c.
D $w \geq 4.2c - 1.8$	Misinterpreted the problem and subtracted the weight of the box and randomly chose the number 4.2 to be multiplied with c.

Question 20 – 2004 TAKS Released Test

Student Expectation: 10 – A.B1(D) The student represents relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities.

Which inequality best describes the graph shown below?

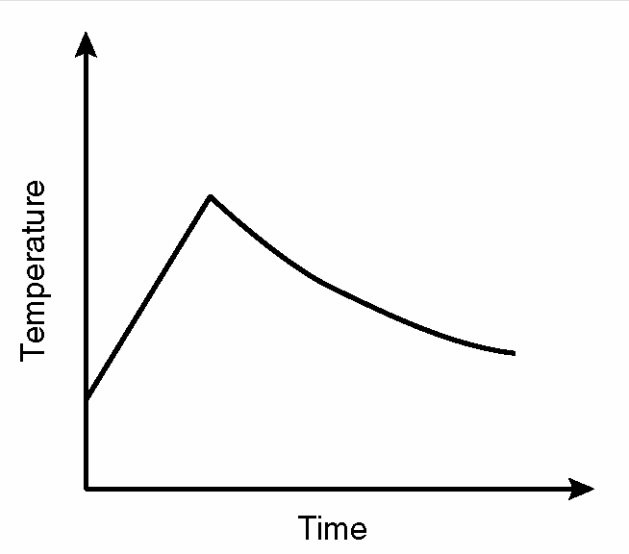


A $y \geq -2x$	The line graphed is not the equation in answer choice A. The y-intercept is incorrect and the slope is -1 and not -2.
B $y \geq -x - 2$ *	**Correct:** The line graphed has a y-intercept of -2 and the slope is -1. After the line is graphed correctly, it becomes necessary to shade one side of the coordinate grid. In this problem it is possible to use the point (0,0) in making the decision to shade. Substitute (0,0) in the equation. If the arithmetic produces a true statement, then the side with (0,0) is shaded. $0 \geq -0 - 2$ $0 \geq -2$ This is a true statement so the side containing the point (0,0) is shaded.
C $y \geq -2x - 2$	The equation of the line in answer C does not match the line graphed. The slope of the graphed line is -1 and not -2 as shown in the equation.
D $y \geq x - 2$	The equation of the line in answer D does not match the line graphed. The slope of the graphed line is -1 and not +1 as shown in the equation.

Question 51 – 2004 TAKS Released Test

Student Expectation: 10 – A.B1(E) The student interprets and makes inferences from functional relationships.

The graph below best represents which of the following relationships between temperature and time?

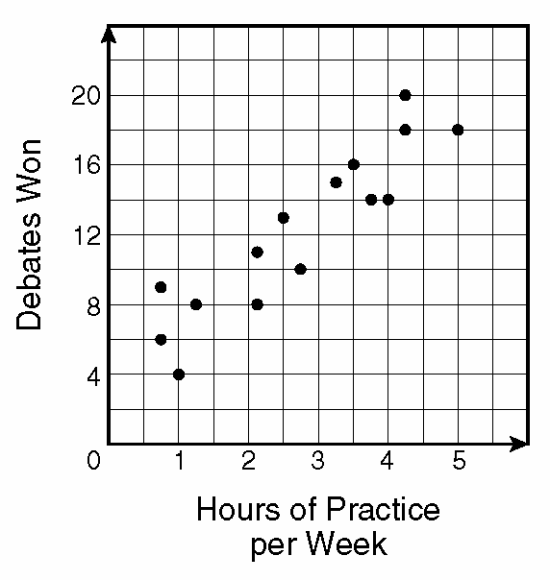


A Oven temperature while a cake is baking	Answer choice A would result in a line that increases to a maximum temperature and sustained close to that temperature for a certain amount of time before the line went back down.
B Temperature of water that is heated on a stove, removed, and then allowed to cool *	**Correct:** The temperature increases at a constant rate and begin to cool slowly once the water is removed from the heat.
C Temperature of a container of hot tea after placing several cubes of ice in it	Answer choice C would result in a graph that began at a high temperature on the graph. The line would be more vertical than the line in the problem because of the ice cooling the water quickly.
D Room temperature of a gym after the air conditioner is turned on	The graph for answer choice C would look similar to answer choice C except that the line would be less vertical.

Question 12 – 2004 TAKS Released Test

Student Expectation: 10 – A.B2(D) In solving problems, the student collects and organizes data, makes and interprets scatterplots, and models, predicts, and makes decisions and critical judgments.

The coaches of a group of debate teams answered a survey about hours of debate team practice and number of team wins. The graph shows the results of this survey.



Based on these results, if a team practices 4 hours per week next season, which is the best estimate of the number of debates the team can expect to win?

A 1	Read the y-axis as the "hours of practice per week."
B 12	12 wins is below the actual number of wins (14) with four hours of practice.
C 16 *	**Correct:** A line drawn though the middle of the data points starting at the y-intercept (0, 2) and passing through point (4, 16) is the best estimation.
D 20	20 wins with 4 hours of practice per week is the point (4, 20) which is a high estimate.

Question 32 – 2004 TAKS Released Test

Student Expectation: 10 – A.B3(A) The student uses symbols to represent unknowns and variables.

Mrs. Franklin received a 7% raise at her job. If she was earning x dollars per year before, how much is she earning now?

A $x + 7$	Answer choice A represents Mrs. Franklin's salary from last year + 7 dollars. To calculate 7% of her salary she would need to multiply her salary from last year and 7% ($0.07x$).
B $x + 0.07$	Answer choice B represents Mrs. Franklin's salary from last year + 7 cents. To calculate 7% of her salary from last year she would need to multiply her salary from last year and 7% ($0.07x$).
C $x + 0.7x$	0.7 is 70%, not 7%
D $x + 0.07x$ *	**Correct:** In $x + 0.07x$, x represents the salary from last year and $0.07x$ represents the amount of Mrs. Franklin's raise.

Question 4 – 2004 TAKS Released Test

Student Expectation: 10 – A.B3(B) Given situations, the student looks for patterns and represents generalizations algebraically.

Which expression can be used to find the values of $s(n)$ in the table below?

n	1	2	3	4	5	6
$s(n)$	5	8	11	14	?	?

A $3n$	Nonexample: If $n = 1$ then $3n = 3$ which is not the value for s(1).
B $5n$	Nonexample: If $n = 2$ then $5n = 10$ which is not the value for s(2).
C $n + 4$	Nonexample: If $n = 2$ then $n + 4 = 6$ which is not the value for s(2).
D $3n + 2$ *	**Correct:** $n = 1$ $3(1) + 2 = 5$ $n = 2$ $3(2) + 2 = 8$ $n = 3$ $3(3) + 2 = 11$ $n = 4$ $3(4) + 2 = 14$

Question 1 – 2004 TAKS Released Test	
Student Expectation: 10 – A.B4(B) The student uses the commutative, associative, and distributive properties to simplify algebraic expressions.	
Simplify the algebraic expression $5(x + 3)(x + 2) – 3(x^2 + 2x + 1)$.	
A $2x^2 + 7$	The two binomials were multiplied incorrectly. Multiply $(x+3)(x+2) = x^2 + 6x + 6$ and do not distribute the 5 or -3 to get $x^2 + 6x + 6 + x^2 + 2x + 1$. The second mistake occurs when the students notices that $+6x - 6x$ can be eliminated, and decides to distribute the -3 to 2*x*. The result is $x^2 + 6x + 6 + x^2 - 6x + 1$. Rearrange the terms so the "like terms" are together. $x^2 + x^2 + 6 + 1$ and combine the like terms for answer choice A.
B $2x^2 + 27$	The two binomials were multiplied incorrectly. Multiply $(x+3)(x+2) = x^2 + 6x + 6$ and distribute -3 $5(x^2 + 6x + 6) - 3x^2 - 6x - 3$. The second mistake occurs when the students notices that $+6x - 6x$ can be eliminated, but overlooked the fact that the 5 was not distributed. The result is $5(x^2 + 6) - 3x^2 - 3$. Now distribute the 5 $5x^2 + 30 - 3x^2 - 3$. Rearrange the terms so the "like terms" are together. $5x^2 - 3x^2 + 30 - 3$ Combine the like terms for answer choice B.
C $2x^2 + 7x + 7$	$(x+3)(x+2) = x^2 + 5x + 6$ Instead of distributing the 5 and -3 to the trinomials $5(x^2 + 5x + 6) - 3(x^2 + 2x + 1)$. The 5 and -3 were omitted to get $x^2 + 5x + 6 + x^2 + 2x + 1$. Rearrange the terms so the "like terms" are together. $x^2 + x^2 + 5x + 2x + 6 + 1$ Combine the like terms to get answer choice C.
D $2x^2 + 19x + 27$ *	**Correct:** First multiply $(x+3)(x+2) = x^2 + 5x + 6$ then distribute $5(x^2 + 5x + 6) - 3(x^2 + 2x + 1) =$ $5x^2 + 25x + 30 - 3x^2 - 6x - 3$ Rearrange the terms so the "like terms" are together. $5x^2 - 3x^2 + 25x - 6x + 30 - 3$ Combine the like terms. $2x^2 + 19x + 27$

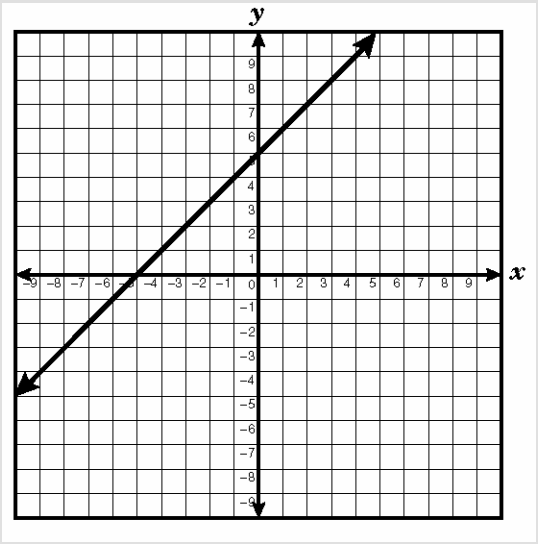
Question 25 – 2004 TAKS Released Test	
Student Expectation: 10 – A.B4(B) The student uses the commutative, associative, and distributive properties to simplify algebraic expressions.	
Which expression is equivalent to $5(x^2 - 4x) - (x + 1)$?	
A $5x^2 - 21x + 1$	Did not distribute – (x + 1) correctly. The correct distribution is – x – 1 and not – x + 1.
B $5x^2 - 5x - 1$	Did not distribute $5(x^2 - 4x)$ correctly. The correct distribution is $5x^2 - 20x$ and not $5x^2 - 4x$.
C $5x^2 - 21x - 1$ *	**Correct:** There a two distributions to complete. $5x^2 - 20x - x - 1$ Add the x terms to get answer choice C.
D $5x^2 - 5x + 1$	Both distributions were done incorrectly. a. Did not distribute $5(x^2 - 4x)$ correctly. The correct distribution is $5x^2 - 20x$ and not $5x^2 - 4x$. b. Did not distribute – (x + 1) correctly. The correct distribution is – x – 1 and not – x + 1.

Question 52 – 2004 TAKS Released Test

Student Expectation: 10 – A.C1(C) The student translates among and uses algebraic, tabular, graphical, or verbal descriptions of linear functions.

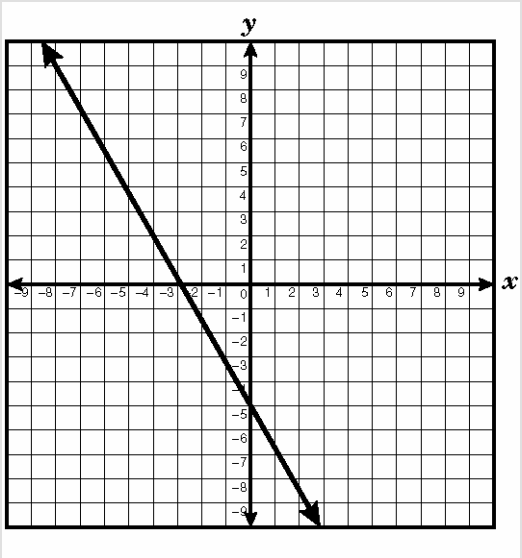
Which graph best represents the function $y = -1.75x + 5$?

A

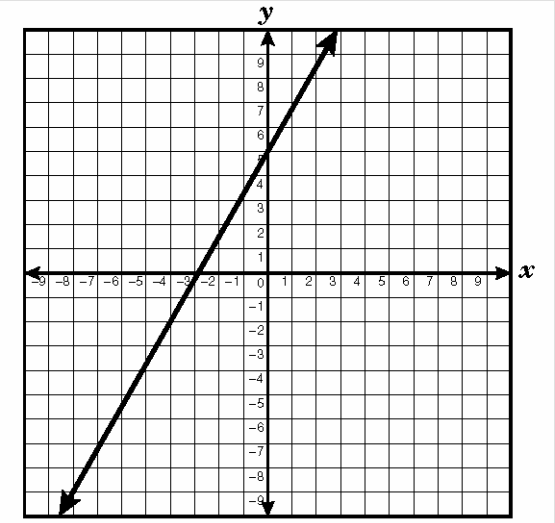
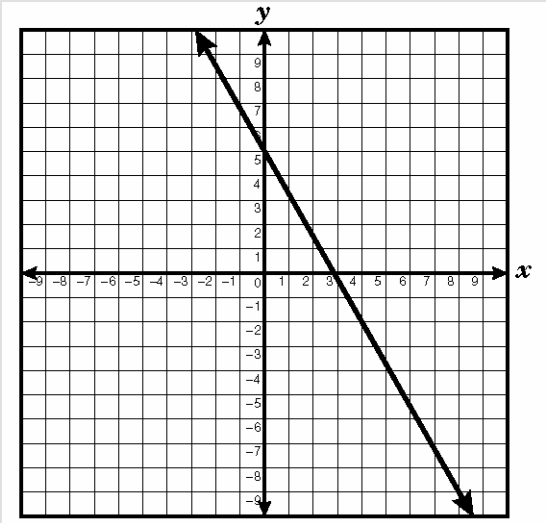


In the equation y = -1.75 + 5, the slope is -1.75 and the y-intercept is +5. The line in answer choice A has a y-intercept of +5, but the slope is +1.

B



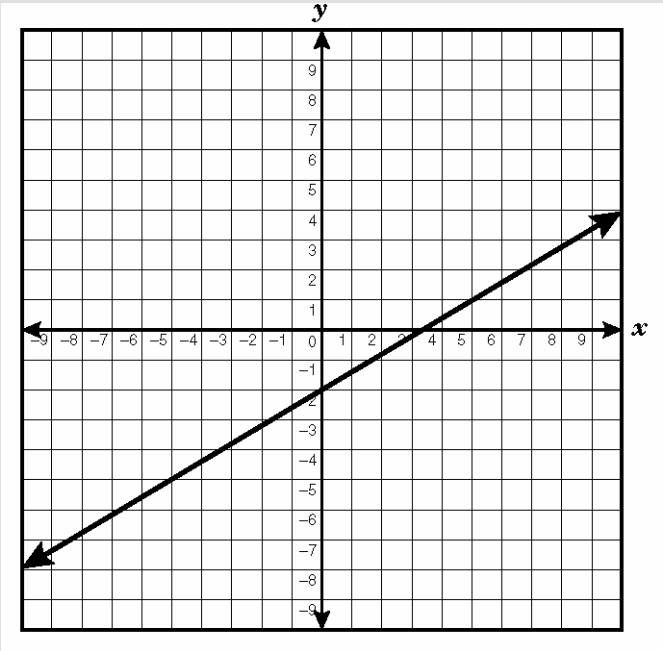
In the equation y = -1.75 + 5, the slope is -1.75 and the y-intercept is +5. The line in answer choice B has a slope of -1.75, but the y-intercept is -5.

C  	In the equation y = -1.75 + 5, the slope is -1.75 and the y-intercept is +5. The line in answer choice C has a y-intercept of +5, but the slope is +1.75.
D *  	**Correct:** The line in answer choice D is described by the equation y = -1.75x + 5 because the line goes through the y-axis at +5 and the slope of the line –s -1.75. To verify that the slope of the line is -1.75 choose two points on the line. The points (0,5) and (4, -2) are both on the line so use the slope of a line formula in the mathematics chart to calculate the slope. $m = \frac{-2-5}{4-0}$. The slope is -7/4 or -1.75.

Question 26 – 2004 TAKS Released Test

Student Expectation: 10 – A.C2(A) The student develops the concept of slope as rate of change and determines slopes from graphs, tables, and algebraic representations.

What is the rate of change of the graph below?

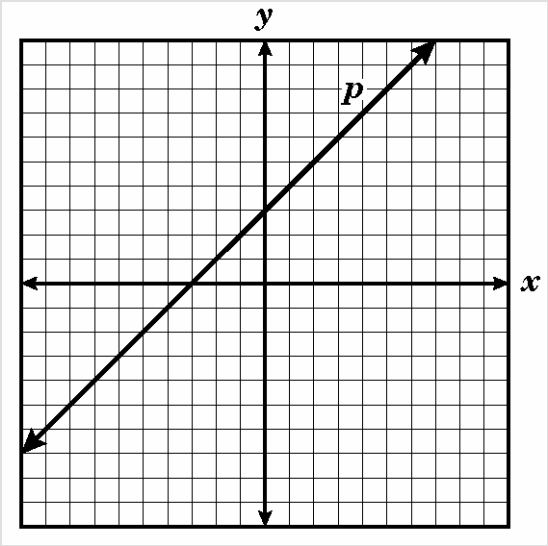


A 3.5	Estimated the x-intercepted.
B 1.67	Students choosing answer B calculated the slope to be $\frac{2}{3} = .67$ which is correct and the 1 was ignored. No other answer choice has .67 so 1.67 was chosen by a process of elimination.
C 0.6 *	**Correct:** Rate of change is the slope of the line. Slope is the $\frac{\text{change in y}}{\text{change in x}}$. The change in y is up two units (+2) and the change in x is right three units (+3). The rate of change is $\frac{2}{3} = .667$
D − 1.67	Even though the slope of the line in the problem is positive, students may have calculated a negative slope. If the slope is calculated by counting two units up, from the y-intercept, on the y-axis (+2) and three units left, from the x-intercept, (-3) then the slope is +2/-3 = -.67. The 1 was ignored.

Question 8 – 2004 TAKS Released Test

Student Expectation: 03 – A.C2© The student investigates, describes, and predicts the effects of changes in m and b on the graph of y = mx + b.

What will happen to the slope of line *p* if the line is shifted so that the *y*-intercept increases and the *x*-intercept remains the same?



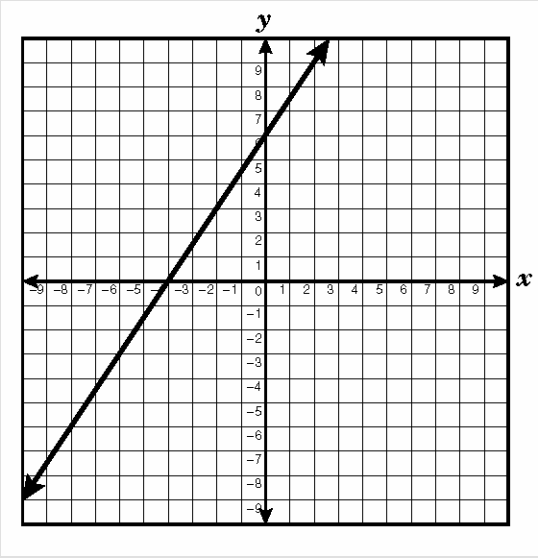
A The slope will change from positive to negative.	Slope is defined as the change in *y* divided by the change in *x*. Since the *x*-intercept is negative for line *p*, the only way line *p* will have a negative slope is if the *y*-intercept is below the *x*-intercept. This cannot happen because the problem states that the *y*-intercept increases from the present value of +3.
B The slope will change from negative to positive.	Students choosing the answer do not understand the concept of positive and negative slope because the slope of line *p* is positive to begin with.
C The slope will increase. *	**Correct:** The student understands that the slope is the ratio of the change in *y* divided by the change in *x*. If a slope is positive and *y* (the numerator) is increased than the slope increases also.
D The slope will decrease.	Slope is defined as the change in *y* divided by the change in *x*. If the slope of line *p* is negative, increasing the *y*-intercept will decrease the slope. Students choosing this answer may have calculated the slope to be negative but it is positive.

Question 44 – 2004 TAKS Released Test	
Student Expectation: 10 – A.C2(D) The student graphs and writes equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept.	
Which equation describes the line that passes through the point (4, 7) and is parallel to the line represented by the equation $-3x + y = 4$?	
A $y = -3x + 19$	See step 3.) in answer choice B. The student added 12 + 7 instead of subtracting.
B $y = 3x - 5$ *	**Correct:** Two things are needed to solve the problem. The first is a point (4, 7), which is given in the problem. The second piece of information needed is a slope. The clue to find the slope is the line is parallel to the line -3x + y = 4. Solve the equation -3x + y = 4 for y. Add 3x to both sides -3x + (3x) + y = 4 + (3x) y = 4 + 3x The slope is 3 and the point is (4, 7) so it will be necessary to use the point-slope form of an equation found on the formula chart. $y - y_1 = m(x - x_1)$ Substitute $m = 3,\ x_1 = 4,\ and\ y_1 = 7$ 1.) y – 7 = 3(x – 4) 2.) y – 7 = 3x – 12 3.) y – 7 + (7) = 3x – 12 + (7) 4.) y = 3x – 5
C $y = \frac{1}{3}x + 5\frac{2}{3}$	Solved the slope incorrectly and got 1/3 instead of 3.
D $y = -\frac{1}{3}x + 8\frac{1}{3}$	Found the equation of the line that is **perpendicular** to -3x + y = 4 and passing through the point (4, 7).

Question 6 – 2004 TAKS Released Test

Student Expectation: 10 – A.C2(E) The student determines the intercepts of linear functions from graphs, tables, and algebraic representations.

Which coordinate points represent the *x*- and *y*-intercepts of the graph shown below?



A (0, − 4) and (6, 0)	Reversed the x and y coordinates.
B (− 4, 0) and (0, 6) *	**Correct:** The student understands naming points on a coordinate grid.
C (6, 0) and (− 4, 0)	Incorrectly put the nonzero number first in the ordered pair.
D (0, 6) and (0, − 4)	Incorrectly put the nonzero number last in the ordered pair.

Question 14 – 2004 TAKS Released Test

Student Expectation: 10 – A.C3(A) The student analyzes situations involving linear functions and formulates linear equations or inequalities to solve problems.

Rita put some hummingbird feeders in her backyard. The table shows the number of hummingbirds that Rita saw compared to the number of feeders.

Bird-Watching

Number of Feeders	Number of Hummingbirds
1	3
2	5
3	7
4	9
5	11

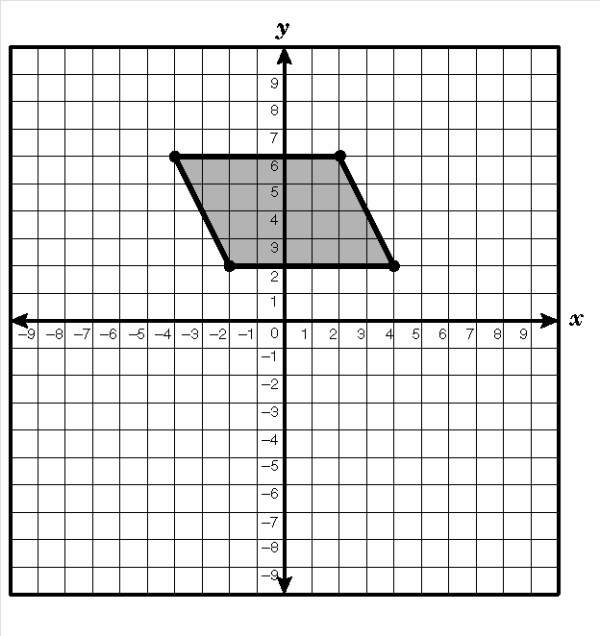
Which equation best describes the relationship between *h*, the number of hummingbirds, and *f*, the number of feeders?

A $h = 2f + 1$ *	**Correct:** 3 = 2(1) + 1 5 = 2(2) + 1 7 = 2(3) + 1 9 = 2(4) + 1 11 = 2(5) + 1
B $f = 2h + 1$	Contradiction: h = 3 The table shows 3 hummingbirds for 1 feeder. The equation shows 3 hummingbirds for 7 feeders.
C $h = f + 2$	Contradiction: f = 5 The table shows 11 hummingbirds for 5 feeders. The equation shows 7 hummingbirds for 5 feeders.
D $f = \frac{h+1}{2} + 1$	Contradiction: h = 3 The table shows 3 hummingbirds for 1 feeder. The equation shows 3 hummingbirds for 3 feeders.

Question 18 – 2004 TAKS Released Test

Student Expectation: 10 – A.C3(A) The student analyzes situations involving linear functions and formulates linear equations or inequalities to solve problems.

A shaded parallelogram is graphed on the coordinate grid below.



Which of the following functions describes a line that would include an edge of the shaded parallelogram?

A $y = -2x + 5$	Not a possible answer choice since the y-intercept is +5 which is inside the shaded region of the parallelogram.
B $y = -2x - 2$ *	**Correct:** To show that the line y = -2x – 2 includes an edge, begin at the y-intercept -2. The next point on the line is found by using the slope (-2) which is the same as $\frac{-2}{1}$. From the y-intercept of -2, count two units down and one unit right. Draw a line through the two points to verify that the left edge of the shaded region is included in the line y = -2x – 2.
C $y = -2x + 9$	To show that the line y = -2x + 9 does not include an edge, begin at the y-intercept +9. The next point on the line is found by using the slope (-2) which is the same as $\frac{-2}{1}$. From the y-intercept of +9, count two units down and one unit right. Draw a line through the two points to verify that the right edge of the shaded region is not included in the line y = -2x + 9.
D $y = -2x - 1$	To show that the line y = -2x – 1 does not include an edge, begin at the y-intercept – 1. The next point on the line is found by using the slope (-2) which is the same as $\frac{-2}{1}$. From the y-intercept of -1, count two units down and one unit right. Draw a line through the two points to verify that the left edge of the shaded region is not included in the line y = -2x – 9.

Question 46 – 2004 TAKS Released Test	
Student Expectation: 10 – A.C3(C) For given contexts, the student interprets and determines the reasonableness of solutions to linear equations and inequalities.	
In 1998 the enrollment at a community college was approximately 2500 students. In 2002 the enrollment had increased to 3250 students. If the enrollment continues to increase at this rate, what is a reasonable projection of enrollment for 2010?	
A 4750 *	**Correct:** The enrollment increased 750 students in 4 years for an average of 187.5 students per year. In 8 years, with increases at the same rate (8*187.5), the projected enrollment will be 3250 + 8*187.5 = 4750.
B 5750	Sum of 2500 and 3250.
C 6250	Calculated an average enrollment increase of 187.5 per year and multiplied the average by 12 (187.5*12 = 2250). Answer C is the sum of the years 1998, 2002, and 2250.
D 9000	Calculated the average annual enrollment increase to be 812.5 by dividing 3250/4. After calculating the average enrollment increase incorrectly, the second mistake is projecting the enrollment using the equation 2500 + 8*812.5 = 9000.

Question 54 – 2004 TAKS Released Test	
Student Expectation: 10 – A.C4(A) The student analyzes situations and formulates systems of linear equations to solve problems.	
Chase and Sara went to the candy store. Chase bought 5 pieces of fudge and 3 pieces of bubble gum for a total of $5.70. Sara bought 2 pieces of fudge and 10 pieces of bubble gum for a total of $3.60. Which system of equations could be used to determine the cost of 1 piece of fudge, *f*, and 1 piece of bubble gum, *g*?	
A $5f + 3g = 3.60$ $2f + 10g = 5.70$	Reversed the total cost of Chase and Sara's purchases.
B $5f + 2g = 5.70$ $3f + 10g = 3.60$	The student choosing this answer decided that the two numbers listed first in the problem, 5 and 3, should be listed first in the equations.
C $f + g = 22$ $7f + 13g = 9.30$	Added the amounts of fudge and gum listed in the problem (5 + 3 + 2 + 10 + 1 +1 = 22) and added the amount of money $5.70 + 3.60 = $9.30.
D $5f + 3g = 5.70$ $2f + 10g = 3.60$ *	**Correct:** Two equations are derived from the information in the problem, and organizing the information is key to the correct answer. Five pieces of fudge is 5f. Three pieces of gun is 3g. Chase bought 5f and 3g for a total of $5.70. The equation for Chase is 5f + 3g = 5.70. The equation representing Sara's purchase is two pieces of fudge (2f) and ten pieces of gum (10g) is $3.60. (2f + 10g = 3.60).

Question 24 – 2004 TAKS Released Test	
Student Expectation: 10 – A.C4(B) The student solves systems of linear equations using concrete models, graphs, tables, and algebraic methods.	
What is the x-coordinate of the solution to the system of linear equations below? $4x + 5y = 8$ $2x - 3y = -18$	
A −4	Answer choice A is the opposite of the y-coordinate.
B −3 *	**Correct:** There are at least two methods (addition and substitution) to solve the problem. The addition method will be used to solve for x. 1. Set up the problem by lining up the variables 4x + 5y = 8 2x – 3y = -18 2. Since the problems asks for the x coordinate, eliminate the y coordinate by making the coefficients in front of the y in both equations 15. To accomplish this multiply the first equation by 3 and the second equation by 5. 3. 3(4x + 5y) = 3(8) 5(2x – 3y) = 5(-18) 12x + 15y = 24 10x – 15y = -90 4. Add the two equations 12x + 15y = 24 10x – 15y = -90 22x + 0y = -66 5. The y variable is multiplied by 0 and is eliminated. Solve for x 22x = -66 or x = -3
C 3	Answer choice C is the opposite of the x-coordinate.
D 4	Answer choice D is the y-coordinate.

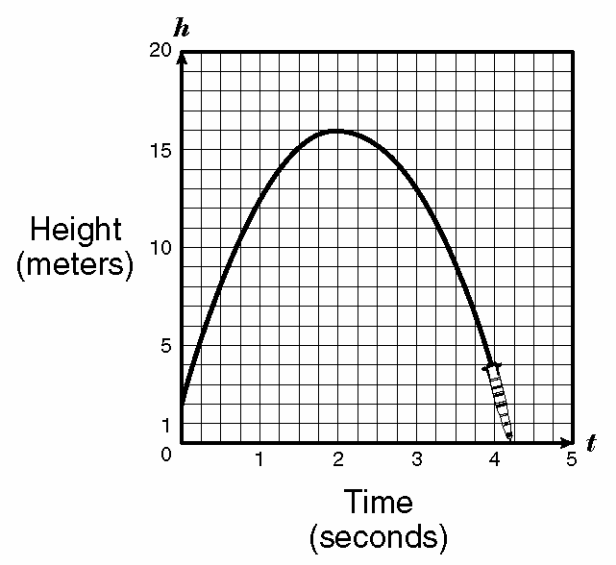
Question 17 – 2004 TAKS Released Test	
Student Expectation: 10 – A.D1(B) The student investigates, describes, and predicts the effects of changes in a on the graph of $y = ax^2$.	
What is the effect on the graph of the equation $y = -4x^2$ when the equation is changed to $y = 4x^2$?	
A The graph of $y = 4x^2$ is translated 8 units down.	In addition to confusing the *a* for *c* in the parent function $y = ax^2 + c$, the student also does not understand how *c* functions in the equation.
B The graph of $y = 4x^2$ is a reflection of $y = -4x^2$ across the *x*-axis. *	**Correct:** In the parent function $y = ax^2 + c$, *a* determines the width of the parabola. A negative value for *a* means the parabola opens down and a positive value means *a* opens up. Parabolas opening up or down are reflected across the x-axis.
C The graph of $y = 4x^2$ is translated 8 units up.	Confused the *a* for *c* in the parent function $y = ax^2 + c$
D The graph of $y = 4x^2$ is a reflection of $y = -4x^2$ across the *y*-axis.	Reversed the axes.

Question 45 – 2004 TAKS Released Test	
Student Expectation: 10 – A.D1(C) The student investigates, describes, and predicts the effects of changes in c on the graph of y = x2 + c.	
How does the graph of $y = x^2$ differ from the graph of $y = x^2 - 4$?	
A The graph of $y = x^2 - 4$ is wider than the graph of $y = x^2$.	Confused the affects of *a* and *c* in the function. $y = ax^2 + c$
B The graph of $y = x^2 - 4$ is shifted to the left of the graph of $y = x^2$.	Confused the x and y axes.
C The graph of $y = x^2 - 4$ is shifted down from the graph of $y = x^2$. *	**Correct:** In the function $y = x^2 - 4$, the -4 indicates that the graph is shifted down 4 units.
D The graph of $y = x^2 - 4$ is narrower than the graph of $y = x^2$.	Confused the affects of *a* and *c* in the function. $y = ax^2 + c$

Question 55 – 2004 TAKS Released Test

Student Expectation: 10 – A.D1(D) For problem situations, the student analyzes graphs of quadratic functions and draws conclusions.

The graph below shows *h*, the height in meters of a model rocket, versus *t*, the time in seconds after the rocket is launched. From the graph, what conclusion can be made about the flight of the rocket?

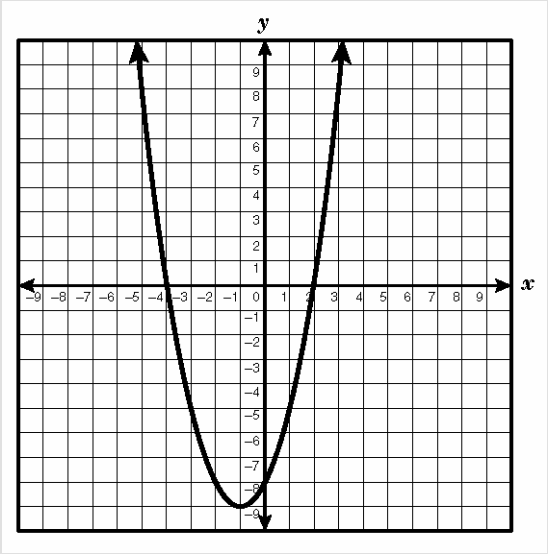


A The rocket reached its maximum height after 2.5 seconds.	The vertex is the point (2, 16) which means that the maximum height occurred at 2 seconds and the height was 16 meters.
B At 0 seconds the rocket was 2 meters off the ground. *	**Correct:** The y-intercept on the graph is (0, 2) which means that at 0 seconds the rocket was 2 meters off the ground.
C The height of the rocket was 0 meters when it was launched.	The y-intercept on the graph is (0, 2) which means that at 0 seconds, at launch, the rocket was 2 meters off the ground.
D The rocket was in flight for 5 seconds.	The x-axis is labeled from 0 to 5 seconds, but the rocket is at 4.25 seconds.

Question 40 – 2004 TAKS Released Test

Student Expectation: 10 – A.D2(B) The student relates the solutions of quadratic equations to the roots of their functions.

What are the roots of the function graphed below?



A (− 1, − 9) and (0, − 8)	Does not understand the concept of "roots of a function" and chose the vertex and the y-intercept.
B (0, − 4) and (2, 0)	Reversed the coordinates on the point (0, -4)
C (− 4, 0) and (2, 0) *	**Correct:** The roots of a function are the x-intercepts and the function crosses the x-axis at (-4, 0) and (2, 0).
D (0, 2) and (0, − 4)	Reversed the x and y coordinates.

Question 33 – 2004 TAKS Released Test	
Student Expectation: 10 – A.D3(A) The student uses patterns to generate the laws of exponents and applies them in problem-solving situations.	
Which expression is equivalent to $\frac{27x^{-2}y^{6}}{3x^{5}y^{2}z^{0}}$?	
A $\frac{9x^{7}y^{4}}{z}$	Two mistakes. x^{7} belongs in the denominator and $z^{0}=1$.
B $\frac{y^{4}}{9x^{3}}$	Two mistake. $\frac{27}{3}=\frac{9}{1}$ and $\frac{x^{-2}}{x^{5}}=\frac{1}{x^{5+2}}=\frac{1}{x^{7}}$.
C $\frac{9y^{4}}{x^{7}}$ *	**Correct:** $\frac{27}{3}=9$, $\frac{x^{-2}}{x^{5}}=\frac{1}{x^{5+2}}$, $z^{0}=1$ and $\frac{y^{6}}{y^{2}}=y^{6-2}$ multiplying the four $\frac{9y^{6-2}}{(1)x^{2+5}}$ and completing the problem results in answer choice C.
D $\frac{9y^{4}}{x^{7}z}$	The only mistake is $z^{0}=1$.