PASSAIC PUBLIC SCHOOLS
FORWARD! ¡PA'LANTE!

Sandra Montanez-Diodonet
Superintendent of Schools

Ali Alavi
Mathematics Supervisor

Summer Math Assignment:

As the school year has come to an end, we realize that you are looking forward to sunny days and relaxation. However, we also realize that students need to keep academic skills fresh for the next school year, and we want you to have a smooth transition in the fall. The math department has created a math summer assignment for you to complete before you enter the next grade. Students must show their work on white lined paper and return the assignment to their math teacher upon return to school. In the fall, the teachers will administer an assessment regarding the skills utilized to complete this assignment. The assessment will take place in September.

Have a safe and wonderful Summer! We look forward to seeing you in September!

****

Como el año escolar ha llegado a su fin, somos conscientes de que están deseando que lleguen los días soleados y de relajación. Sin embargo, también nos damos cuenta de que los estudiantes necesitan mantener las habilidades académicas frescas para el próximo año escolar, y queremos que usted tenga una facil transición en el otoño. El departamento de matemáticas ha creado una tarea de verano de matemáticas para que la completen antes de entrar al siguiente grado. Los estudiantes deben mostrar su trabajo en papel y devolver la tarea a su maestro de matemáticas al regresar a la escuela. En el otoño, los maestros administrarán una evaluación con respecto a las habilidades utilizadas para completar esta asignación. La evaluación de matemáticas se realizará en septiembre.

¡Que tengan un verano seguro y maravilloso! Esperamos verlos en septiembre.

Phone: 973.470.5787 | Fax: 973.909.9156 | 663 Main Avenue, Passaic, NJ 07055 | aalavi@passaicschools.org

Pre-Calculus

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Write the decimal as a percent.

____ 1. 0.056
a. 57% b. 5.6% c. 5.7% d. 56%

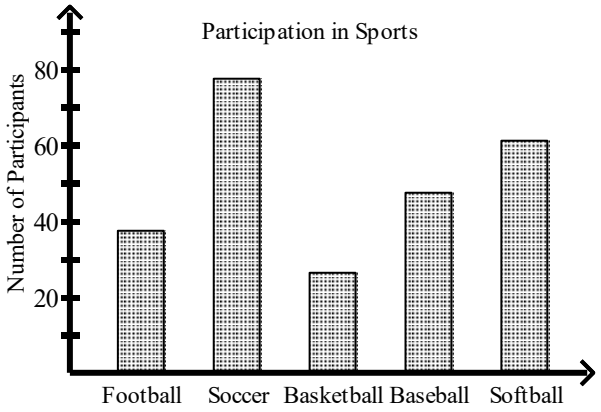
Write the expression using exponents.

____ 2. $x \cdot x \cdot x \cdot x$
a. x^4 c. $4x^4$
b. $4x$ d. $x + 4$

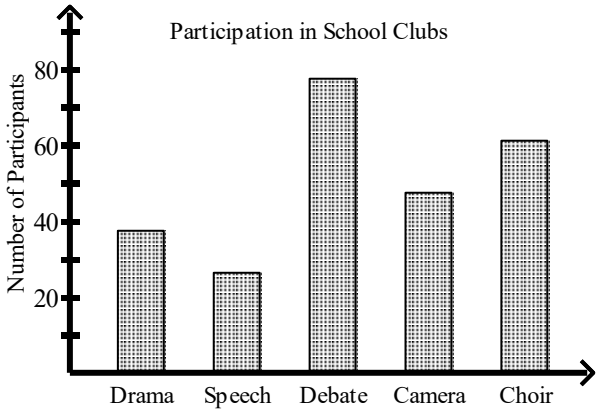
____ 3. Which of the following bar graphs shows the number of participants in various sports as listed below?

Football	Soccer	Basketball	Baseball	Softball
37	77	26	47	61

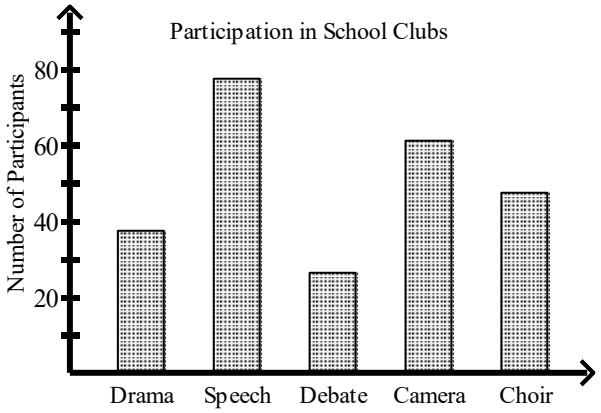
a.



b.



c.



d. none of these

____ 4. Which data set has mean 6.92?

a. 5.1, 8.3, 4.1, 6.4, 9.5
b. 5.4, 7.7, 9.3, 4.2, 7.1
c. 9.4, 8.1, 4.5, 6.6, 9.6
d. 6.1, 7.5, 7.3, 8.8, 4.9

Perform the indicated operation.

____ 5. $\frac{14}{5x} + \frac{14}{6x}$

a. $\frac{14}{11x}$
b. $\frac{28}{11x}$
c. $\frac{14}{15x}$
d. $\frac{77}{15x}$

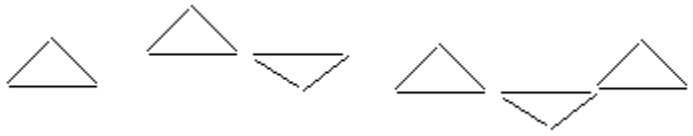
Identify a pattern and find the next number in the pattern.

____ 6. –0.6, –3, –15, –75

a. –675
b. –375
c. –75
d. 5

Use a pattern to answer each question.

____ 7. How many line segments are in the 20th figure?

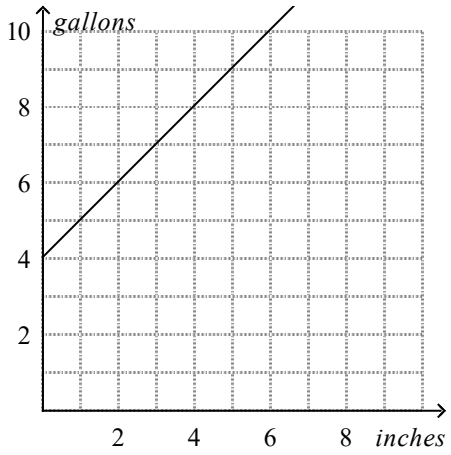


a. 80
b. 23
c. 20
d. 60

Use a graph to find the solution.

____ 8. You want to set up an aquarium and need to determine what size tank to buy. The graph shows tank sizes using a rule that relates the capacity of the tank to the combined lengths of the fish it can hold.

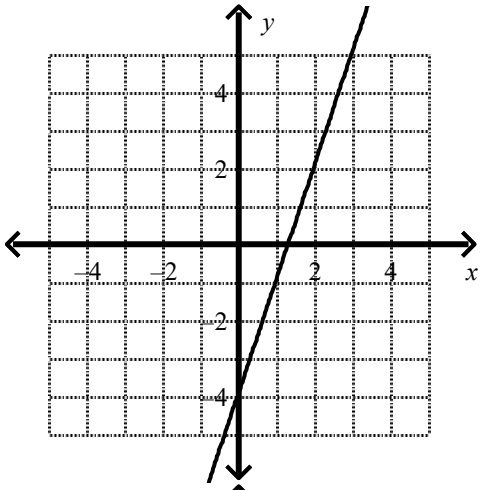
If you want four 2-in. platys, seven 1-in. guppies, and a 3-in. loach, what is the smallest capacity tank you can buy?



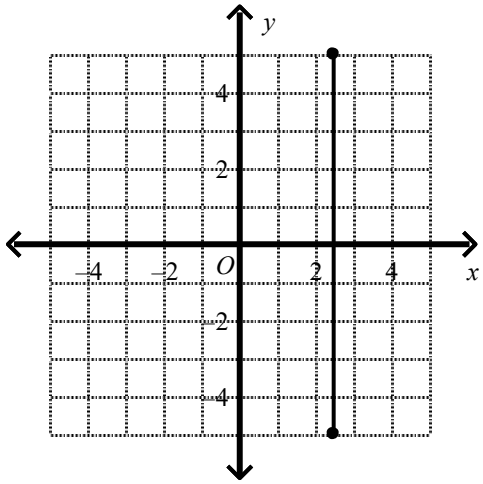
a. 18-gallon
b. 22-gallon
c. 25-gallon
d. 19-gallon

____ 9. Use the vertical-line test to determine which graph represents a function.

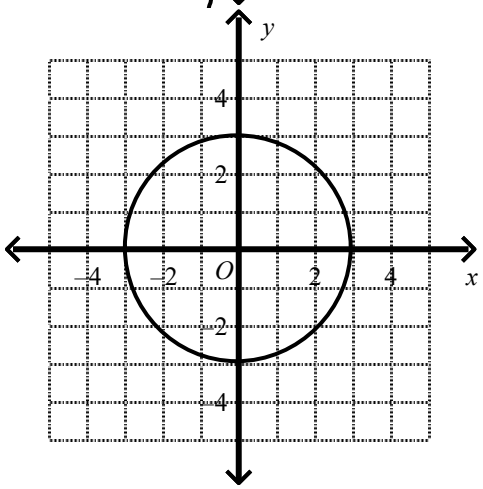
a.



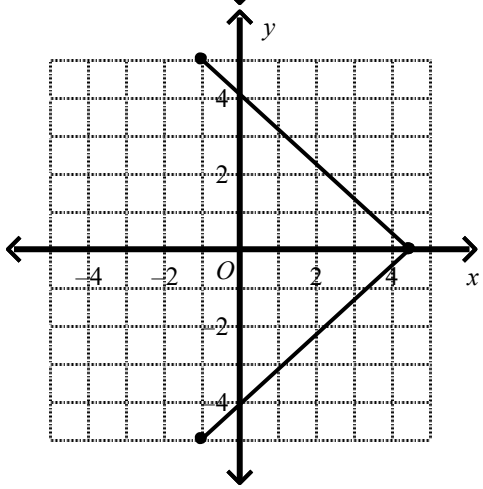
c.



b.



d.



____ 10. Tickets to a concert are available online for $25 plus a one-time handling fee of $1.75. The total cost is a function of the number of tickets bought. What function rule models the cost of the concert tickets? Evaluate the function for 6 tickets.

a. $25t + 1.75$; $151.75
b. $1.75t + 25$; $151.75
c. $1.75t + 25$; $35.50
d. $25t + 1.75$; $35.50

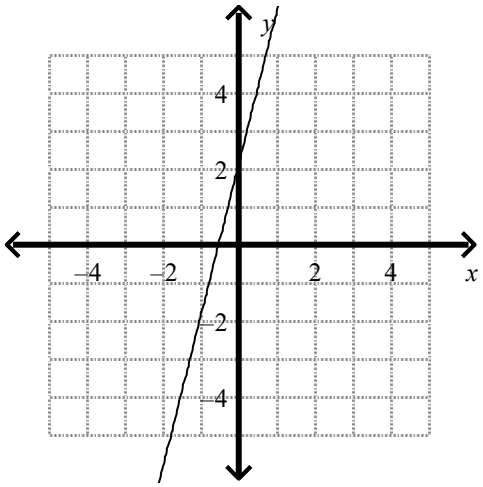
____ 11. Specialty t-shirts are being sold online for $35 plus a one-time handling fee of $1.75. The total cost is a function of the number of t-shirts bought. What function rule models the cost of the t-shirts? Evaluate the function for 6 t-shirts.

a. $1.75t + 35$; $211.75
b. $35t + 1.75$; $211.75
c. $1.75t + 35$; $45.5
d. $35t + 1.75$; $45.5

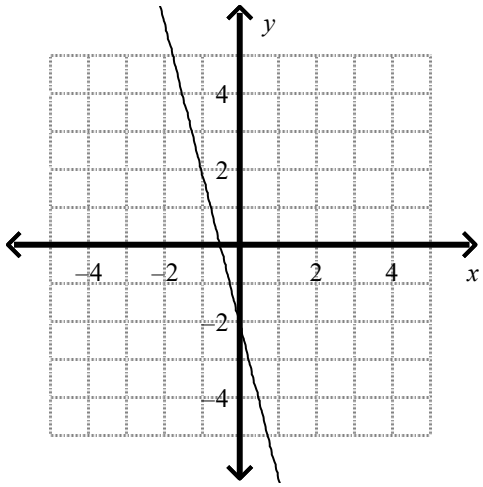
What is the graph of the equation?

____ 12. $-4x + y = -2$

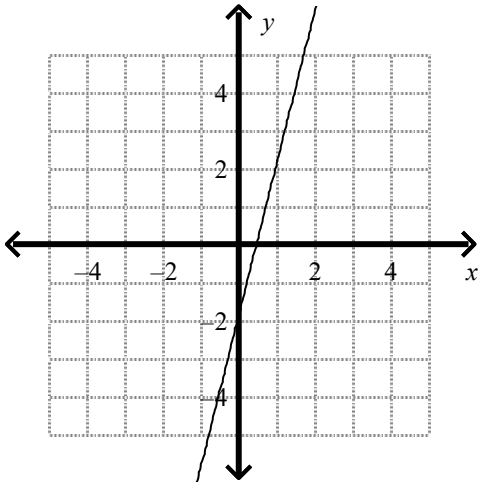
a.



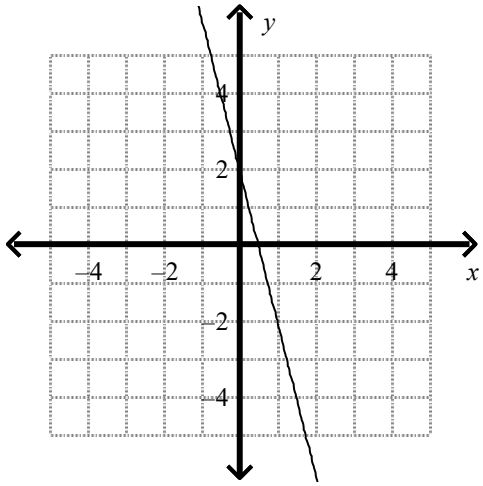
c.



b.



d.



Write an equation of the line, in point-slope form, that passes through the two given points.

____ 13. points: $(-10, 18),\ (6, -14)$

a. $y - 18 = -2(x + 10)$

b. $y - 10 = -2(x - 18)$

c. $y - 10 = -\frac{1}{2}(x + 18)$

d. $y - 18 = -\frac{1}{2}(x + 10)$

____ 14. points: $(-5, 5),\ (15, -5)$

a. $(y + 5) = -\frac{1}{2}(x - 5)$

b. $(y - 5) = -2(x + 5)$

c. $(y - 5) = -\frac{1}{2}(x + 5)$

d. $(y + 5) = -2(x - 5)$

What is the equation of the given line in standard form? Use integer coefficients.

____ 15. $y = -0.1x + 3.3$

a. $1x + 10y = 33$

b. $-1x + 10y = 33$

c. $1x + 10y = -33$

d. $-1x + 10y = -33$

What is the equation of the line in slope-intercept form?

____ 16. the line parallel to $y = -7x - 2$ through (–4, 6)

a. $y = \frac{1}{7}x - 22$

b. $y = 7x - 22$

c. $y = -7x - 34$

d. $y = -7x - 22$

How can you represent the system of equations with a matrix?

____ 17. $\begin{cases} -4x - 10y + 5z = 4 \\ 14x - 5y - 7z = 7 \\ 10x + 14y + 5z = -5 \end{cases}$

a. $\left[\begin{array}{ccc|c} -4 & -10 & 7 & -4 \\ 14 & -5 & -7 & -7 \\ 10 & 14 & 5 & -5 \end{array}\right]$

b. $\left[\begin{array}{cc|c} 10 & 14 & -4 \\ 14 & -5 & -10 \\ 5 & -7 & 7 \\ -5 & 7 & 4 \end{array}\right]$

c. $\left[\begin{array}{ccc|c} -4 & -10 & 7 & 4 \\ 14 & -5 & -7 & 7 \\ 10 & 14 & 5 & -5 \end{array}\right]$

d. $\left[\begin{array}{cc|c} 10 & 14 & -4 \\ 14 & -5 & -10 \\ 5 & -7 & 7 \\ -5 & -7 & -4 \end{array}\right]$

What linear system of equations does the matrix represent?

____ 18. $\left[\begin{array}{cc|c} 9 & -11 & -2 \\ -14 & 11 & 8 \end{array}\right]$

a. $\begin{cases} 9x = -14 \\ -11x = 11 \\ -2x = 8 \end{cases}$

b. $\begin{cases} 9x - 11y = 2 \\ -14x + 11y = -8 \end{cases}$

c. $\begin{cases} 9x - 11y = -2 \\ -14x + 11y = 8 \end{cases}$

d. $\begin{cases} 9x = -14 \\ -11x = 11 \\ 2x = -8 \end{cases}$

What is the solution of the system of equations? (Use a calculator.)

____ 19. $\begin{cases} 5x + 3y + 2z = -4 \\ -5x - 4y - 2z = 7 \\ 4x + 2y + 2z = -2 \end{cases}$

a. (1, –3, 0)
b. (0, –3, 1)
c. (–1, 3, 0)
d. (0, 3, –1)

What is the number of real solutions?

____ 20. $8x^2 - 11x = -3$

a. one real solution
b. two real solutions
c. no real solutions
d. cannot be determined

____ 21. $x^2 = -7x + 7$

a. one solution
b. no real solutions
c. two solutions
d. cannot be determined

What is the simplest form of the expression?

____ 22. $\sqrt{20} + \sqrt{45} - \sqrt{5}$

a. $4\sqrt{5}$
b. $6\sqrt{5}$
c. $13\sqrt{5}$
d. $5\sqrt{5}$

What is the simplest form of the number?

____ 23. $-27^{\frac{2}{3}}$

a. 9
b. 57
c. –28
d. –18

____ 24. What is the solution of $\sqrt{5x+1} - \sqrt{x} = 5$?

a. $x = 0$
b. $x = 16$ and $x = 0$
c. $x = 16$
d. $x = 16$ and $x = 1$

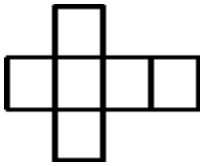
____ 25. You have a coupon good for $6 off the price of any large pizza. You also get a 20% discount on any pizza if you show your student ID. How much more would you pay for a large pizza if the cashier applies the coupon first?

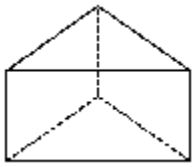
a. $1.50
b. $0.00
c. $1.20
d. $.50

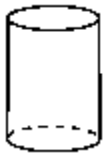
____ 26. You can model the population of a certain city between the years 1965 and 1995 by the radical function $P(x) = 55000\sqrt{x - 1950}$. Using this model, in what year was the population of that city 235,000?

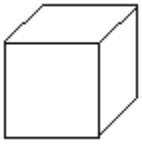
a. 1967
b. 1968
c. 1966
d. 1971

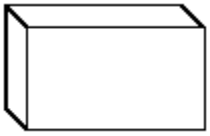
____ 27. Which three-dimensional figure matches this net?



a. 

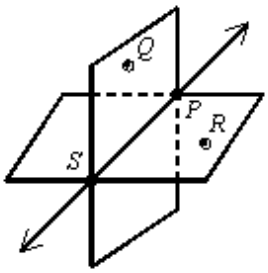
c. 

b. 

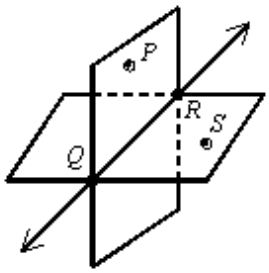
d. 

____ 28. Which diagram shows plane *PQR* and plane *QRS* intersecting only in $\overleftrightarrow{QR}$?

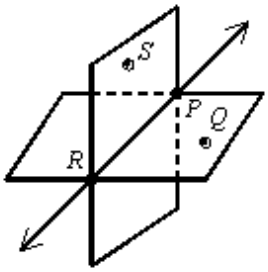
a.



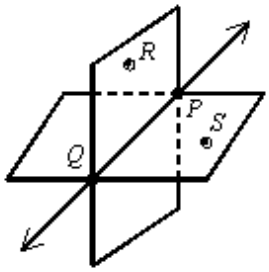
c.



b.



d.



____ 29. Plane *ABC* and plane *BCE* ____ be the same plane.

a. must b. may c. cannot

____ 30. Which angle is a right angle?

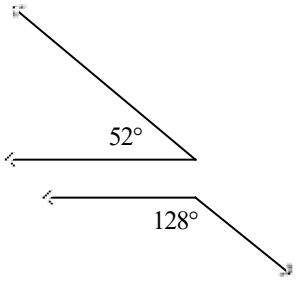
a.

c.

b.

d.

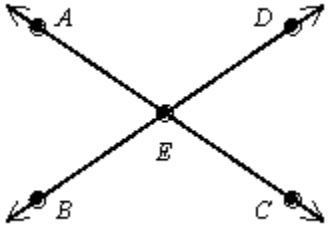
____ 31. How are the two angles related?



Drawing not to scale

a. vertical
b. supplementary
c. complementary
d. adjacent

____ 32. In the figure shown, $m\angle AED = 120$. Which of the following statements is false?

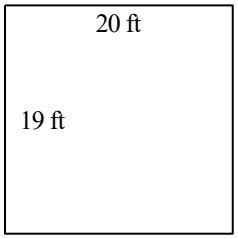


Not drawn to scale

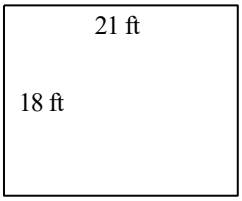
a. $m\angle AEB = 60$
b. $\angle BEC$ and $\angle CED$ are adjacent angles.
c. $m\angle BEC = 120$
d. $\angle AED$ and $\angle BEC$ are adjacent angles.

____ 33. Jennifer has 78 feet of fencing to make a rectangular vegetable garden. Which dimensions will give Jennifer the garden with greatest area? The diagrams are not to scale.

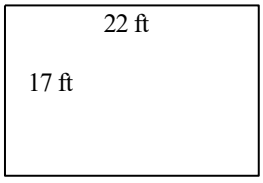
a.



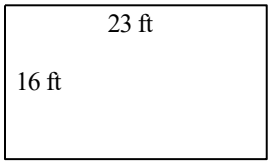
c.



b.



d.



____ 34. Which choice shows a true conditional, with the hypothesis and conclusion identified correctly?

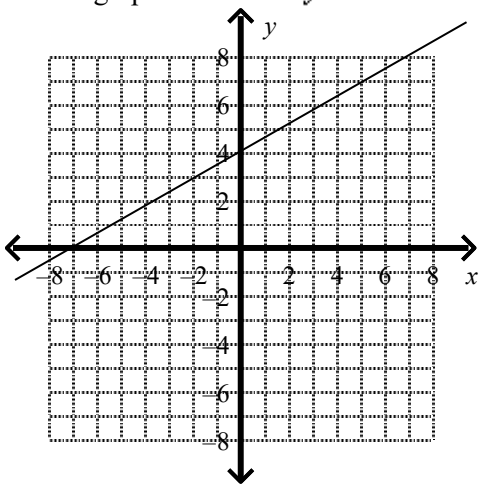
a. Yesterday was Monday if tomorrow is Thursday.
   Hypothesis: Tomorrow is Thursday.
   Conclusion: Yesterday was Monday.
b. If tomorrow is Thursday, then yesterday was Tuesday.
   Hypothesis: Yesterday was Tuesday.
   Conclusion: Tomorrow is not Thursday.
c. If tomorrow is Thursday, then yesterday was Tuesday.
   Hypothesis: Yesterday was Tuesday.
   Conclusion: Tomorrow is Thursday.
d. Yesterday was Tuesday if tomorrow is Thursday.
   Hypothesis: Tomorrow is Thursday.
   Conclusion: Yesterday was Tuesday.

____ 35. Which conditional has the same truth value as its converse?

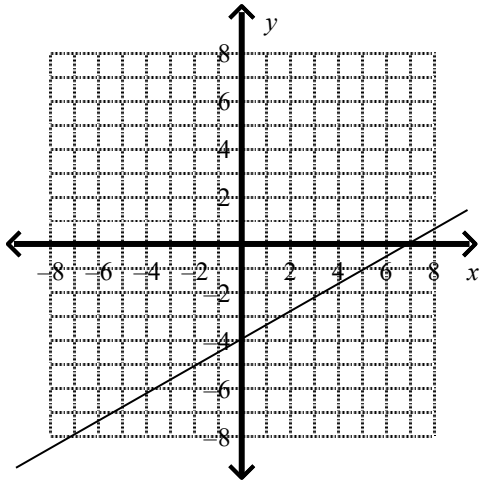
a. If $x = 7$, then $|x| = 7$.
b. If a figure is a square, then it has four sides.
c. If $x - 17 = 4$, then $x = 21$.
d. If an angle has a measure of 80, then it is acute.

____ 36. What is the graph of $-4x + 7y = -28$?

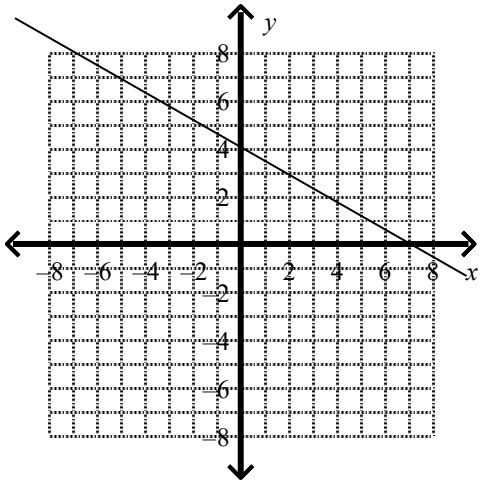
a.



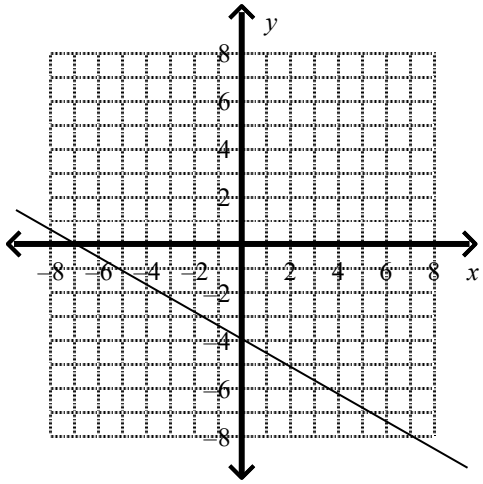
c.



b.



d.

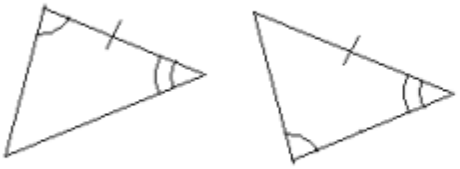


____ 37. What must be true about the slopes of two perpendicular lines, neither of which is vertical?

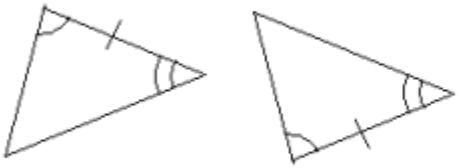
a. The slopes are equal.
b. The slopes have product 1.
c. The slopes have product –1.
d. One of the slopes must be 0.

____ 38. Which pair of triangles is congruent by ASA?

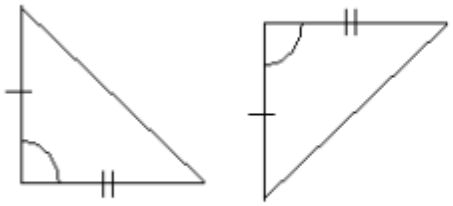
a.



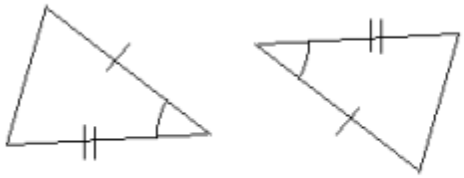
b.



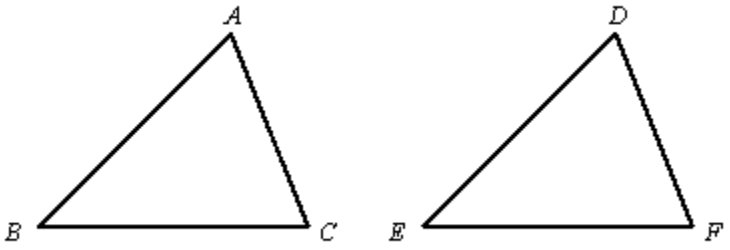
c.



d.



____ 39. If $\angle A \cong \angle D$ and $\angle C \cong \angle F$, which additional statement does NOT allow you to conclude that $\triangle ABC \cong \triangle DEF$?



a. $\overline{BC} \cong \overline{EF}$

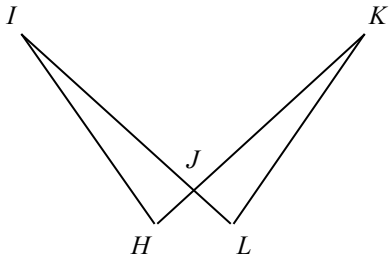
b. $\angle B \cong \angle E$

c. $\overline{AC} \cong \overline{DF}$

d. $\overline{AB} \cong \overline{DE}$

____ 40. Based on the given information, what can you conclude, and why?

Given: $\angle H \cong \angle L$, $\overline{HJ} \cong \overline{JL}$



a. $\triangle HIJ \cong \triangle LKJ$ by ASA

b. $\triangle HIJ \cong \triangle JLK$ by SAS

c. $\triangle HIJ \cong \triangle JLK$ by ASA

d. $\triangle HIJ \cong \triangle LKJ$ by SAS