

1. 080601a, P.I. A.N.1
While solving the equation $4(x + 2) = 28$,
Becca wrote $4x + 8 = 28$. Which property did
she use?
- [A] associative [B] commutative
[C] identity [D] distributive

2. 080602a, P.I. A.A.22
What is the value of p in the equation
 $2(3p - 4) = 10$?
- [A] 3 [B] 1 [C] $2\frac{1}{3}$ [D] $\frac{1}{3}$

3. 080603a, P.I. A.A.26
Jordan and Missy are standing together in the
schoolyard. Jordan, who is 6 feet tall, casts a
shadow that is 54 inches long. At the same
time, Missy casts a shadow that is 45 inches
long. How tall is Missy?
- [A] 5 ft 6 in [B] 86.4 in
[C] 38 in [D] 5 ft

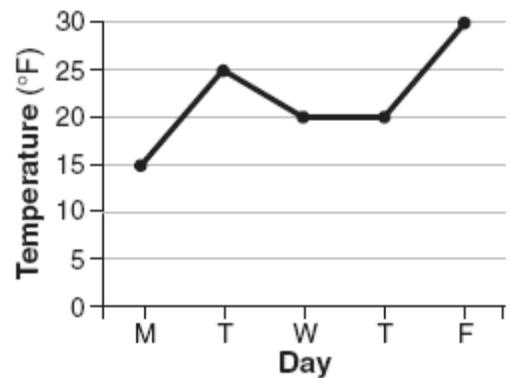
4. 080604a, P.I. A.S.20
The faces of a cube are numbered from 1 to 6.
What is the probability of *not* rolling a 5 on a
single toss of this cube?
- [A] $\frac{1}{6}$ [B] $\frac{1}{5}$ [C] $\frac{5}{6}$ [D] $\frac{4}{5}$

5. 080605a, P.I. A.A.12
What is the product of $10x^4y^2$ and $3xy^3$?
- [A] $30x^5y^5$ [B] $30x^4y^5$
[C] $30x^5y^6$ [D] $30x^4y^6$

6. 080606a, P.I. A.A.7
Sal keeps quarters, nickels, and dimes in his
change jar. He has a total of 52 coins. He has
three more quarters than dimes and five fewer
nickels than dimes. How many dimes does
Sal have?
- [A] 20 [B] 13 [C] 21 [D] 18

7. 080607a, P.I. 7.N.5
A micron is a unit used to measure specimens
viewed with a microscope. One micron is
equivalent to 0.00003937 inch. How is this
number expressed in scientific notation?
- [A] 3.937×10^{-5} [B] 3937×10^{-8}
[C] 3937×10^8 [D] 3.937×10^5

8. 080608a, P.I. 6.S.5
The accompanying graph shows the high
temperatures in Elmira, New York, for a 5-
day period in January.



Which statement describes the data?

- [A] median = mode [B] median = mean
[C] mean < mode [D] mean = mode

9. 080609a, P.I. G.G.61
What is the image of point $(-3, 4)$ under the
translation that shifts (x, y) to $(x - 3, y + 2)$?
- [A] $(-6, 8)$ [B] $(6, 6)$
[C] $(0, 6)$ [D] $(-6, 6)$

10. 080610a, P.I. A.A.15
For which value of x is the expression $\frac{3}{x - 2}$
undefined?
- [A] -2 [B] 2 [C] 0 [D] 3

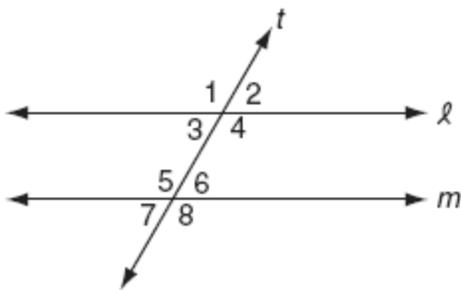
11. 080611a
Which transformation does *not* always result in an image that is congruent to the original figure?

[A] translation [B] reflection
[C] dilation [D] rotation

12. 080612a, P.I. 7.N.11
What is the first step in simplifying the expression $(2 - 3 \times 4 + 5)^2$?

[A] multiply 3 by 4 [B] subtract 3 from 2
[C] square 5 [D] add 4 and 5

13. 080613a, P.I. 8.G.4
In the accompanying diagram, line ℓ is parallel to line m , and line t is a transversal.



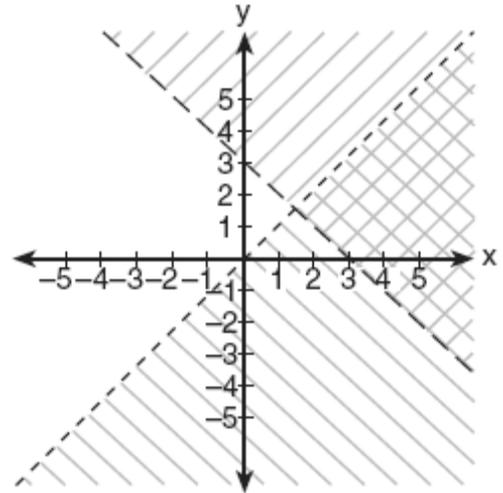
Which must be a true statement?

[A] $m\angle 1 + m\angle 4 = 180$
[B] $m\angle 2 + m\angle 5 = 180$
[C] $m\angle 3 + m\angle 6 = 180$
[D] $m\angle 1 + m\angle 8 = 180$

14. 080614a, P.I. A.N.3
What is the sum of $\sqrt{50}$ and $\sqrt{32}$?

[A] $20\sqrt{20}$ [B] $\sqrt{82}$
[C] $\sqrt{2}$ [D] $9\sqrt{2}$

15. 080615a, P.I. A.A.40
Which ordered pair is in the solution set of the system of inequalities shown in the accompanying graph?



[A] (3,2) [B] (0,1) [C] (1,5) [D] (0,0)

16. 080616a, P.I. A.N.8
Julia has four different flags that she wants to hang on the wall of her room. How many different ways can the flags be arranged in a row?

[A] 1 [B] 10 [C] 24 [D] 16

17. 080617a, P.I. 8.N.2
If $x = 4$ and $y = -2$, the value of $\frac{1}{2}xy^2$ is

[A] 32 [B] 8 [C] -4 [D] -8

18. 080618a, P.I. G.G.38
The measures of two consecutive angles of a parallelogram are in the ratio 5:4. What is the measure of an obtuse angle of the parallelogram?

[A] 160° [B] 80° [C] 100° [D] 20°

19. 080619a, P.I. A.A.39
The graph of the equation $x + 3y = 6$ intersects the y -axis at the point whose coordinates are
- [A] (0,6) [B] (6,0)
[C] (0,2) [D] (0,18)
20. 080620a, P.I. A.A.22
What is the value of w in the equation $\frac{3}{4}w + 8 = \frac{1}{3}w - 7$?
- [A] 2.4 [B] -13.846 [C] -0.2 [D] -36
21. 080621a, P.I. 7.N.3
Which list shows the numbers $|-0.12|$, $\sqrt{\frac{1}{82}}$, $\frac{1}{8}$, $\frac{1}{9}$ in order from smallest to largest?
- [A] $\frac{1}{8}$, $\frac{1}{9}$, $\sqrt{\frac{1}{82}}$, $|-0.12|$
[B] $|-0.12|$, $\frac{1}{8}$, $\frac{1}{9}$, $\sqrt{\frac{1}{82}}$
[C] $\sqrt{\frac{1}{82}}$, $\frac{1}{9}$, $|-0.12|$, $\frac{1}{8}$
[D] $\sqrt{\frac{1}{82}}$, $|-0.12|$, $\frac{1}{9}$, $\frac{1}{8}$
22. 080622a, P.I. A.A.27
One of the roots of the equation $x^2 + 3x - 18 = 0$ is 3. What is the other root?
- [A] -6 [B] 15 [C] -21 [D] 6
23. 080623a
The expression $2x^2 - x^2$ is equivalent to
- [A] 2 [B] x^2 [C] $-2x^4$ [D] x^0
24. 080624a, P.I. G.G.66
The coordinates of A are $(-9, 2)$ and the coordinates of G are $(3, 14)$. What are the coordinates of the midpoint of \overline{AG} ?
- [A] $(-21, -10)$ [B] $(-6, 6)$
[C] $(-6, 16)$ [D] $(-3, 8)$
25. 080625a
What is the total number of points of intersection of the graphs of the equations $x^2 + y^2 = 16$ and $y = x$?
- [A] 1 [B] 3 [C] 4 [D] 2
26. 080626a, P.I. A2.S.11
In the next Olympics, the United States can enter four athletes in the diving competition. How many different teams of four divers can be selected from a group of nine divers?
- [A] 126 [B] 3,024 [C] 6,561 [D] 36
27. 080627a, P.I. A.A.8
When Albert flips open his mathematics textbook, he notices that the product of the page numbers of the two facing pages that he sees is 156. Which equation could be used to find the page numbers that Albert is looking at?
- [A] $x + (x + 1) = 156$ [B] $x(x + 1) = 156$
[C] $(x + 1) + (x + 2) = 156$
[D] $(x + 1)(x + 3) = 156$
28. 080628a, P.I. A.A.39
Point $(k, -3)$ lies on the line whose equation is $x - 2y = -2$. What is the value of k ?
- [A] 8 [B] 6 [C] -8 [D] -6

29. 080629a, P.I. G.G.26
Which statement is logically equivalent to the statement "If Corey worked last summer, he buys a car"?
- [A] If Corey buys a car, he worked last summer.
- [B] If you are an elephant, then you forget.
- [C] If Corey did not work last summer, he does not buy a car.
- [D] If Corey does not buy a car, he did not work last summer.

30. 080630a, P.I. G.G.63
Which line is perpendicular to the line whose equation is $5y + 6 = -3x$?

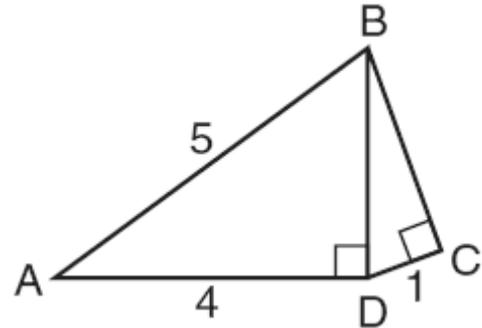
[A] $y = -\frac{3}{5}x + 7$ [B] $y = -\frac{5}{3}x + 7$

[C] $y = \frac{5}{3}x + 7$ [D] $y = \frac{3}{5}x + 7$

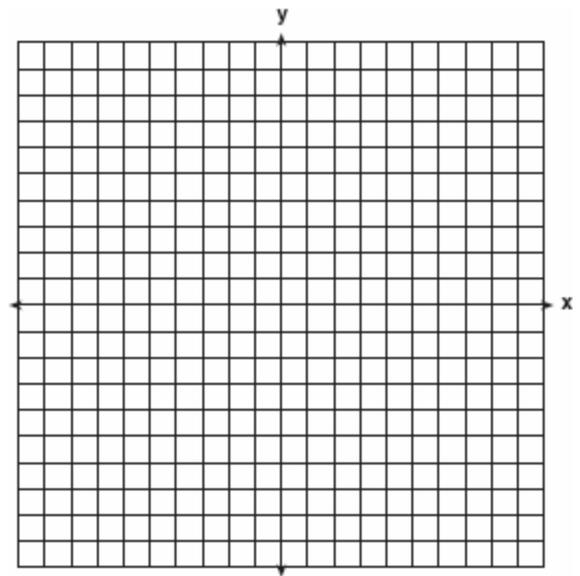
31. 080631a, P.I. A.RP.11
In Clark Middle School, there are 60 students in seventh grade. If 25 of these students take art only, 18 take music only, and 9 do not take either art or music, how many take both art and music?

32. 080632a, P.I. A.A.26
Running at a constant speed, Andrea covers 15 miles in $2\frac{1}{2}$ hours. At this speed, how many *minutes* will it take her to run 2 miles?

33. 080633a, P.I. A.A.45
In the accompanying diagram of right triangles ABD and DBC , $AB = 5$, $AD = 4$, and $CD = 1$. Find the length of \overline{BC} , to the nearest tenth.



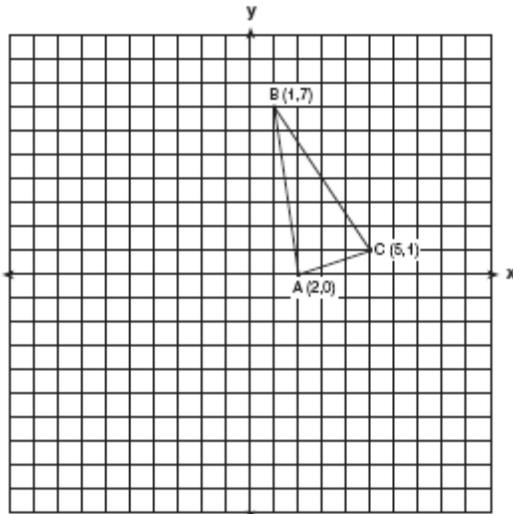
34. 080634a, P.I. G.G.23
Dan is sketching a map of the location of his house and his friend Matthew's house on a set of coordinate axes. Dan locates his house at point $D(0,0)$ and locates Matthews house, which is 6 miles east of Dan's house, at point $M(6,0)$. On the accompanying set of coordinate axes, graph the locus of points equidistant from the two houses. Then write the equation of the locus.



35. 080635a, P.I. A.N.5
A recent survey shows that the average man will spend 141,288 hours sleeping, 85,725 hours working, 81,681 hours watching television, 9,945 hours commuting, 1,662 hours kissing, and 363,447 hours on other tasks during his lifetime. What percent of his life, to the *nearest tenth of a percent*, does he spend sleeping?

36. 080636a, P.I. A.N.7
Debbie goes to a diner famous for its express lunch menu. The menu has five appetizers, three soups, seven entrees, six vegetables, and four desserts. How many different meals consisting of either an appetizer *or* a soup, one entree, one vegetable, and one dessert can Debbie order?

37. 080637a, P.I. G.G.54
Triangle ABC has coordinates $A(2,0)$, $B(1,7)$, and $C(5,1)$. On the accompanying set of axes, graph, label, and state the coordinates of $\triangle A'B'C'$, the reflection of $\triangle ABC$ in the y -axis.



38. 080638a, P.I. 8.G.1
 \overrightarrow{AB} and \overrightarrow{CD} intersect at E . If $m\angle AEC = 5x - 20$ and $m\angle BED = x + 50$, find, in degrees, $m\angle CEB$.

39. 080639a
Manuel plans to install a fence around the perimeter of his yard. His yard is shaped like a square and has an area of 40,000 square feet. The company that he hires charges \$2.50 per foot for the fencing and \$50.00 for the installation fee. What will be the cost of the fence, in dollars?

- [1] D
- [2] A
- [3] D
- [4] C
- [5] A
- [6] D
- [7] A
- [8] A
- [9] D
- [10] B
- [11] C
- [12] A
- [13] B
- [14] D
- [15] A
- [16] C
- [17] B
- [18] C
- [19] C
- [20] D
- [21] C
- [22] A
- [23] B
- [24] D
- [25] D
- [26] A
- [27] B
- [28] C

- [29] D
- [30] C

[2] 8, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] 8, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

- [31] incorrect procedure.

[2] 20, and appropriate work is shown, such as $\frac{15}{150} = \frac{2}{x}$.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made, such as expressing the answer as $\frac{1}{3}$ hour.

or [1] 20, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

- [32] incorrect procedure.

[2] 2.8, and appropriate work is shown, such as $3^2 = 1^2 + (BC)^2$.

[1] Appropriate work is shown, but one computational or rounding error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] The length of \overline{BD} is found to be 3, but no further correct work is shown.

or [1] 2.8, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

- [33] incorrect procedure.

- [2] The points D and M are plotted, the graph of the line $x = 3$ is drawn, and its equation is stated.
[1] One graphing error is made, but an appropriate equation is stated for the locus of points.
or [1] A correct graph is drawn, but the equation is not stated or is stated incorrectly.
or [1] $x = 3$, but no graph is drawn.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [34] _____

- [2] 20.7, and appropriate work is shown, such as $\frac{141288}{683748} = \frac{x}{100}$.
[1] Appropriate work is shown, but one computational or rounding error is made.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] 20.7, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [35] _____

- [3] 1,344, and appropriate work is shown, such as $8 \cdot 7 \cdot 6 \cdot 4$.
[2] Appropriate work is shown, but one computational error is made.
[1] Appropriate work is shown, but two or more computational errors are made.
or [1] Appropriate work is shown, but one conceptual error is made, such as basing the answer on ordering an appetizer and a soup, using $5 \cdot 3 \cdot 7 \cdot 6 \cdot 4$.
or [1] 1,344, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [36] _____

- [3] $A'(-2,0)$, $B'(-1,7)$, and $C'(-5,1)$ are graphed, labeled, and stated correctly.
[2] Appropriate work is shown, but one graphing or labeling error is made.
or [2] $A'(-2,0)$, $B'(-1,7)$, and $C'(-5,1)$, but no graph is drawn.
[1] Appropriate work is shown, but two or more graphing or labeling errors are made.
or [1] Appropriate work is shown, but one conceptual error is made, such as reflecting over the x -axis.
or [1] The three points are plotted correctly, but the coordinates A' , B' , and C' are not stated.
[0] $(-2,0)$, $(-1,7)$, and $(-5,1)$, but no further correct work is shown.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [37] _____
- [4] 112.5, and appropriate work is shown, such as solving the equation $5x - 20 = x + 50$.
[3] Appropriate work is shown, but one computational error is made.
or [3] $m\angle BED = 67.5$ or $m\angle AEC = 67.5$, but no further correct work is shown.
[2] Appropriate work is shown, but two or more computational errors are made.
or [2] Appropriate work is shown, but one conceptual error is made, but an appropriate measure for $\angle CEB$ is found.
or [2] A correct equation is written and solved for x , but no further correct work is shown.
[1] Appropriate work is shown, but one conceptual error and one computational error are made.
or [1] 112.5, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [38] _____

[4] 2,050, and appropriate work is shown, such as finding the length of one side of the field, finding the perimeter, and calculating $(2.50 \cdot 800) + 50$.

[3] Appropriate work is shown, but one computational error is made.

or [3] Appropriate work is shown, but the installation fee is not added to the cost of the fencing.

[2] Appropriate work is shown, but two or more computational errors are made.

or [2] Appropriate work is shown, but one conceptual error is made.

[1] Appropriate work is shown, but one conceptual error and one computational error are made.

or [1] 2,050, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[39] incorrect procedure.