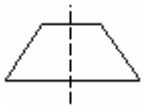
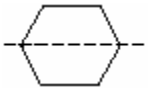
1. 080401a
Which diagram shows a dotted line that is *not* a line of symmetry?

[A]  [B] 

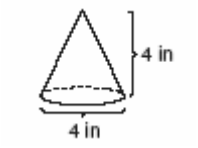
[C]  [D] 

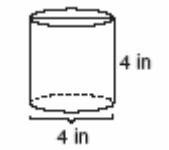
2. 080402a, P.I. 6.S.5
Rosario and Enrique are in the same mathematics class. On the first five tests, Rosario received scores of 78, 77, 64, 86, and 70. Enrique received scores of 90, 61, 79, 73, and 87. How much higher was Enrique's average than Rosario's average?

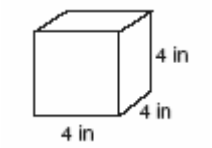
[A] 3 points [B] 15 points

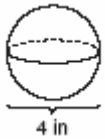
[C] 2 points [D] 4 points

3. 080403a
Which diagram represents the figure with the greatest volume?

[A] 

[B] 

[C] 

[D] 

4. 080404a, P.I. A.N.7
The school cafeteria offers five sandwich choices, four desserts, and three beverages. How many different meals consisting of one sandwich, one dessert, and one beverage can be ordered?

[A] 12 [B] 3 [C] 1 [D] 60

5. 080405a, P.I. A.A.12
When $-9x^5$ is divided by $-3x^3$, $x \neq 0$, the quotient is

[A] $-3x^2$ [B] $-27x^{15}$

[C] $27x^8$ [D] $3x^2$

6. 080406a, P.I. A.A.22
What is the value of *n* in the equation $0.6(n+10)=3.6$?

[A] -4 [B] -0.4 [C] 4 [D] 5

7. 080407a, P.I. 8.G.1
$\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point *E*, $m\angle AEC = 6x+20$, and $m\angle DEB = 10x$. What is the value of *x*?

[A] $21\frac{1}{4}$ [B] $4\frac{3}{8}$ [C] 10 [D] 5

8. 080408a, P.I. 8.N.2
If x = -4 and y = 3, what is the value of $x-3y^2$?

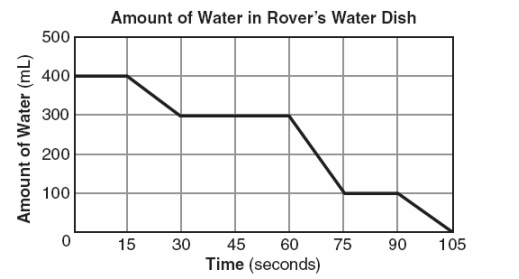
[A] -31 [B] -13 [C] -85 [D] -23

9. 080409a, P.I. G.G.61
What are the coordinates of *P*', the image of *P*(-4, 0) under the translation $(x-3, y+6)$?

[A] (2,-3) [B] (7,-6)

[C] (1,6) [D] (-7,6)

10. 080410a, P.I. 8.A.3
The accompanying graph shows the amount of water left in Rover's water dish over a period of time.



How long did Rover wait from the end of his first drink to the start of his second drink of water?

[A] 30 sec [B] 60 sec

[C] 10 sec [D] 75 sec

11. 080411a, P.I. 8.G.19
Which inequality is represented in the accompanying graph?

[A] $-3 < x \le 4$ [B] $-3 < x < 4$

[C] $-3 \le x < 4$ [D] $-3 \le x \le 4$

12. 080412a, P.I. A.A.7
The ratio of Tariq's telephone bill to Pria's telephone bill was 7:5. Tariq's bill was $14 more than Pria's bill. What was Tariq's bill?

[A] $21 [B] $35 [C] $49 [D] $28

13. 080413a, P.I. A.N.1
Which equation illustrates the distributive property of multiplication over addition?

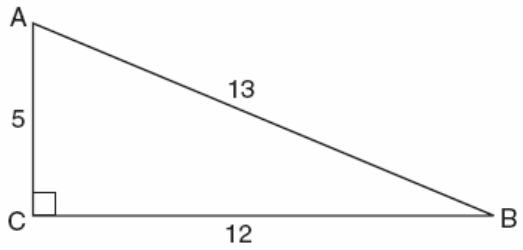
[A] $6(3a + 4b) = 18a + 4b$

[B] $6(3a + 4b) = 6(4b + 3a)$

[C] $6(3a + 4b) = 18a + 24b$

[D] $6(3a + 4b) = (3a + 4b)6$

14. 080414a, P.I. A.A.42
Which ratio represents $\cos A$ in the accompanying diagram of ΔABC?



[A] $\frac{12}{5}$ [B] $\frac{13}{5}$ [C] $\frac{5}{13}$ [D] $\frac{12}{13}$

15. 080415a, P.I. A.A.26
A rocket car on the Bonneville Salt Flats is traveling at a rate of 640 miles per hour. How much time would it take for the car to travel 384 miles at this rate?

[A] 256 minutes [B] 1.7 hours

[C] 245 minutes [D] 36 minutes

16. 080416a, P.I. G.G.26
What is the inverse of the statement "If I do not buy a ticket, then I do not go to the concert"?

[A] If I buy a ticket, then I do not go to the concert.

[B] If I go to the concert, then I buy a ticket.

[C] If I do not go to the concert, then I do not buy a ticket.

[D] If I buy a ticket, then I go to the concert.

17. 080417a, P.I. A.A.32
If the value of dependent variable y increases as the value of independent variable x increases, the graph of this relationship could be a

[A] line with a positive slope

[B] horizontal line [C] vertical line

[D] line with a negative slope

18. 080418a, P.I. G.G.54
What is the image of point $(-3, -1)$ under a reflection in the origin?

[A] (-1, -3) [B] (1, 3)

[C] (-3, 1) [D] (3, 1)

19. 080419a, P.I. A.RP.11
Seventy-eight students participate in one or more of three sports: baseball, tennis, and golf. Four students participate in all three sports; five play both baseball and golf, only; two play both tennis and golf, only; and three play both baseball and tennis, only. If seven students play only tennis and one plays only golf, what is the total number of students who play only baseball?

[A] 44 [B] 56 [C] 60 [D] 12

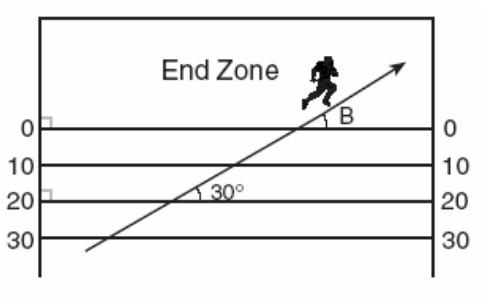
20. 080420a, P.I. 7.A.10
Which linear equation represents the data in the accompanying table?

c	*d*
0	20.00
1	21.50
2	23.00
3	24.50

[A] $d = 21.50c$ [B] $d = 1.50c + 20.00$

[C] $d = 20.00c + 1.50$ [D] $d = 1.50c$

21. 080421a, P.I. 8.G.4
The accompanying diagram shows a football player crossing the 20-yard line at an angle of 30° and continuing along the same path.



What is the measure of angle B, where the player crosses into the end zone?

[A] 180° [B] 60° [C] 150° [D] 30°

22. 080422a, P.I. A.A.15
For which value of *x* is the expression $\frac{x-7}{x+2}$ undefined?

[A] -2 [B] 7 [C] 2 [D] 0

23. 080423a, P.I. A.A.13
The expression $(3x^2 + 2xy + 7) - (6x^2 - 4xy + 3)$ is equivalent to

[A] $-3x^2 + 6xy + 4$ [B] $-3x^2 - 2xy + 4$

[C] $3x^2 - 2xy + 4$ [D] $3x^2 - 6xy - 4$

24. 080424a, P.I. 7.N.6
The number 1.56×10^{-2} is equivalent to

[A] 0.156 [B] 0.00156

[C] 0.0156 [D] 156

25. 080425a, P.I. G.G.33
Which set can *not* represent the lengths of the sides of a triangle?

[A] {7,7,12} [B] {5,5,11}

[C] {8,8,8} [D] {4,5,6}

26. 080426a
Which equation represents the locus of points 4 units from the origin?

[A] $x + y = 16$ [B] $x = 4$

[C] $x^2 + y^2 = 16$ [D] $x^2 + y^2 = 4$

27. 080427a, P.I. G.G.26
What is the contrapositive of the statement "If I study, then I pass the test"?

[A] If I do not pass the test, then I do not study.

[B] If I pass the test, then I study.

[C] If I do not study, then I do not pass the test.

[D] I pass the test if I study.

28. 080428a, P.I. G.G.36
What is the sum, in degrees, of the measures of the interior angles of a stop sign, which is in the shape of an octagon?

[A] 1,440 [B] 360

[C] 1,880 [D] 1,080

29. 080429a, P.I. A.A.10
What point is the intersection of the graphs of the lines $2x - y = 3$ and $x + y = 3$?

[A] (2, 1) [B] (3, 0)

[C] (1, 2) [D] (3, 3)

30. 080430a, P.I. A.S.23
Selena and Tracey play on a softball team. Selena has 8 hits out of 20 times at bat, and Tracey has 6 hits out of 16 times at bat. Based on their past performance, what is the probability that both girls will get a hit next time at bat?

[A] 1 [B] $\frac{31}{40}$ [C] $\frac{14}{36}$ [D] $\frac{48}{320}$

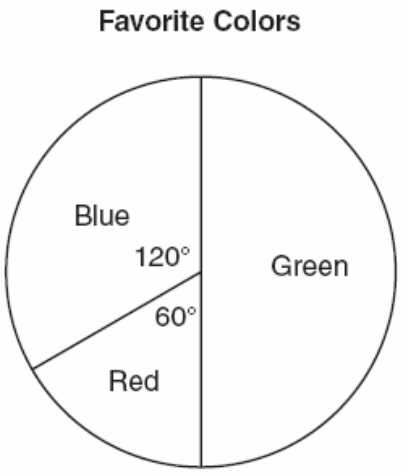
31. 080431a, P.I. 8.G.3
Two angles are complementary. One angle has a measure that is five times the measure of the other angle. What is the measure, in degrees, of the larger angle?

32. 080432a, P.I. 7.N.2
Given: $\frac{\sqrt{99}}{11}$, $\sqrt{164}$, $\sqrt{196}$
Identify the expression that is a rational number and explain why it is rational.

33. 080433a, P.I. G.G.31
Dylan says that all isosceles triangles are acute triangles. Mary Lou wants to prove that Dylan is *not* correct. Sketch an isosceles triangle that Mary Lou could use to show that Dylan's statement is not true. In your sketch, state the measure of *each* angle of the isosceles triangle.

34. 080434a, P.I. A2.A.7
Factor completely: $3ax^2 - 27a$

35. 080435a, P.I. 7.S.6
The accompanying circle graph shows the favorite colors of the 300 students in the ninth grade. How many students chose red as their favorite color?

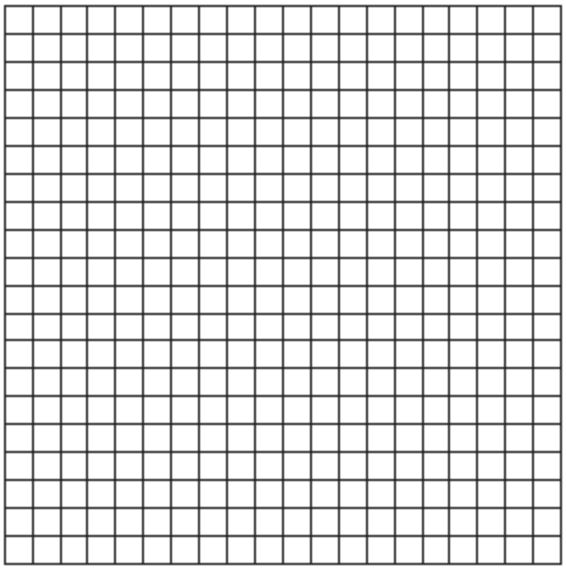


36. 080436a, P.I. A.N.5
Walter is a waiter at the Towne Diner. He earns a daily wage of $50, plus tips that are equal to 15% of the total cost of the dinners he serves. What was the total cost of the dinners he served if he earned $170 on Tuesday?

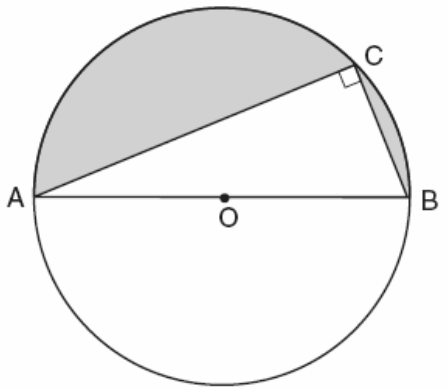
37. 080437a, P.I. A.S.5
The following set of data represents the scores on a mathematics quiz:
58, 79, 81, 99, 68, 92, 76, 84, 53, 57, 81, 91, 77, 50, 65, 57, 51, 72, 84, 89
Complete the frequency table below and, on the accompanying grid, draw and label a frequency histogram of these scores.

Mathematics Quiz Scores

Interval	Tally	Frequency
50–59		
60–69		
70–79		
80–89		
90–99		



38. 080438a
In the accompanying diagram, right triangle *ABC* is inscribed in circle *O*, diameter $AB = 26$, and $CB = 10$. Find, to the *nearest square unit*, the area of the shaded region.



39. 080439a, P.I. A.A.26
Solve for all values of x that satisfy the equation $\frac{x}{x+3} = \frac{5}{x+7}$.

[1] D

[2] A

[3] C

[4] D

[5] D

[6] A

[7] D

[8] A

[9] D

[10] A

[11] A

[12] C

[13] C

[14] C

[15] D

[16] D

[17] A

[18] D

[19] B

[20] B

[21] D

[22] A

[23] A

[24] C

[25] B

[26] C

[27] A

[28] D

[29] A

[30] D

[31]
[2] 75, and appropriate work is shown.
[1] Appropriate work is shown, but one computational error is made.
or [1] An incorrect equation of equal difficulty, such as $x + 5x = 180$, is solved appropriately, and an appropriate angle measure is found.
or [1] A correct equation is written and solved for x, but no further correct work is shown.
or [1] 75, 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.

[32]
[2] $\sqrt{196}$, and an appropriate explanation is given.
[1] An incorrect answer is chosen, but an appropriate explanation is given.
or [1] $\sqrt{196}$, but no explanation or an incorrect explanation is given.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[33]
[2] An isosceles triangle that is not acute is drawn, and its three angles are labeled, such as 20, 20, 140 or 45, 45, 90.
[1] An isosceles triangle is drawn that shows an angle that is not acute, but the base angles are not labeled.
or [1] The three angles are stated correctly, but no triangle is drawn.
[0] The triangle that is drawn and labeled is not isosceles or is acute.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.

[2] $3a(x - 3)(x + 3)$, and appropriate work is shown.
[1] Appropriate work is shown, but one factoring error is made, or the expression is not factored completely.
or [1] $3a(x - 3)(x + 3)$, 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.

[34]

[2] 50, and appropriate work is shown, such as using a proportion.
[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] An incorrect fractional part is determined, but an appropriate number of students is found.
or [1] 50, 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] \$800, and appropriate work is shown, such as $0.15x + 50 = 170$ or a table of values or trial and error with at least three trials and appropriate checks.
[2] Appropriate work is shown, but one computational error is made.
or [2] The trial-and-error method is used to find the correct solution, but only two trials and appropriate checks are shown.
[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.
or [1] Appropriate work is shown, but the \$50 per day is not included in his pay, resulting in an answer of \$1,133.33.
or [1] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but no solution is found.
or [1] \$800, but no work or only one trial with an appropriate check 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] The frequency table is completed correctly, showing frequencies of 6, 2, 4, 5, and 3, and a frequency histogram is drawn and labeled correctly.
[2] The frequency table is completed correctly, but one graphing error is made, such as not labeling the axes, having nonequal intervals, or starting the *x*-axis at 50.
or [2] The frequency table is completed incorrectly, but an appropriate frequency histogram is drawn.
or [2] The frequency histogram is drawn and labeled correctly, but the frequency table is not completed.
[1] The frequency table is completed correctly, but two or more graphing errors are made.
or [1] The frequency table is completed correctly, but no frequency histogram is drawn or a bar 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.

[37]

[4] 145, and appropriate work is shown, such as $(\frac{1}{2}\pi 13^2)-(\frac{1}{2}\cdot 10\cdot 24)$.
[3] Appropriate work is shown, but one computational or rounding error is made or the answer is expressed in terms of π.
or [3] Appropriate work is shown, but the area of the entire circle is used to calculate the area of the shaded region.
or [3] The areas of the semicircle and triangle are found correctly, but they are not subtracted to find the shaded area.
[2] Appropriate work is shown, but two or more computational or rounding errors are made.
or [2] An incorrect formula is used to find the area of the triangle or the semicircle, but an appropriate shaded area is found.
or [2] Only the area of the semicircle or the area of the triangle is found correctly, and no further correct work is shown.
[1] Both the areas of the semicircle and the triangle are found incorrectly, but they are subtracted to find an appropriate shaded area.
or [1] Only the length of $\overline{AC}$ is found correctly.
or [1] 145, 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] 3 and –5, and appropriate work is shown, such as $x(x + 7) = 5(x + 3)$ or trial and error with at least three trials and appropriate checks for each solution.
[3] Appropriate work is shown, but one computational or factoring error is made.
or [3] Appropriate work is shown, but only one correct solution is found.
or [3] The trial-and-error method is used to find both correct solutions, but only two trials and appropriate checks are shown for each solution.
[2] Appropriate work is shown, but two or more computational or factoring errors are made.
or [2] A correct quadratic equation is written and factored, but no further correct work is shown.
or [2] The trial-and-error method is attempted and at least six systematic trials and appropriate checks are shown, but neither solution is found.
[1] A correct quadratic equation is written, but no further correct work is shown.
or [1] 3 and –5, but no work or only one trial with an appropriate check is shown.
[0] 3 or –5, but no work or only one trial with an appropriate check 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.

[39]