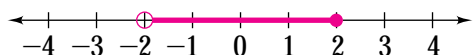


For Exercises 1–21, choose the correct letter.

- Evaluate $2y + 7$ for $y = 4$.
A. 31 B. 12 C. 11
D. 22 E. 15
- Suppose you buy 2 items costing d dollars each and you give the cashier \$10. Which expression models the change you should receive?
A. $10 + 2d$ B. $2d - 10$ C. $10 - 2d$
D. $2d$ E. $\frac{10}{2d}$
- A manufacturing company spends \$1200 each day on plant costs plus \$7 per item for labor and materials. The items sell for \$23 each. How many items must the company sell in one day to equal its daily costs?
A. 160 B. 52 C. 200
D. 150 E. 75

- Which compound inequality represents the set of numbers shown on the number line?



- $3 \leq x < 2$ B. $-2 < x \leq 2$
 - $3 \geq x$ and $x < 2$ D. $2 \geq x$ or $x < -2$
 - $-2 \leq x \leq 2$
- Find the greatest common factor (GCF) of the terms of the polynomial $12x^5 + 4x^3 - 16x^2$.
A. $4x^2$ B. $-2x$ C. x^3 D. $4x^3$ E. $16x^2$
 - Find the product of $(w - 5)(w + 7)$.
A. $w^2 + 12w - 35$ B. $w^2 + 2w - 2$
C. $w^2 - 2w - 2$ D. $w^2 - 35$
E. $w^2 + 2w - 35$
 - If $x^2 = 36$ and $y^2 = 16$, choose the least possible value for $y - x$.
A. 2 B. -2 C. 10 D. -10 E. 0
 - Which of the following points is *not* a solution of $y \leq 2x^2 - 5x + 3$?
A. (3, 6) B. (0, -2) C. (-1, 4)
D. (2, 18) E. (-2, -5)

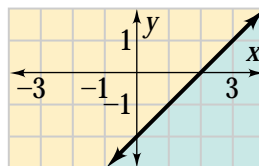
- Which of the following is an equation of a line passing through (5, 1) and (3, -3)?

- $y = \frac{1}{2}x - \frac{3}{2}$ B. $y = \frac{3}{2}x - 2$
- $y = 2x - \frac{3}{2}$ D. $y = 2x - 9$
- $y = 2x + 9$

- The function $y = |2x + 6|$ belongs to which family of functions?

- polynomial function
- quadratic function
- linear function
- rational function
- absolute value function

- Which of the following describes the shaded region of the graph?



- $y \leq x - 2$ B. $y \geq x - 2$
 - $y = x - 2$ D. $y < x - 2$
 - $y > x - 2$
- Evaluate $a^2b^3c^{-1}$ for $a = 2$, $b = -1$, and $c = -2$.
A. 2 B. -2 C. 8 D. -10 E. 4
 - Suppose you deposit \$1000 in an account paying 5.5% interest, compounded annually. Which expression represents the value of the investment after 10 years?
A. $1000 \cdot 1.55^{10}$ B. $1000 \cdot 1.055^{10}$
C. $1000 \cdot 0.055^{10}$ D. $1000 \cdot 10^{1.055}$
E. $1000^{10} \cdot 0.055$
 - Potassium-42 has a half-life of 12.5 h. How many half-lives are in 75 h?
A. 150 B. 6 C. 25 D. 4 E. 8
 - Simplify $(2.5 \times 10^4)(3.0 \times 10^{-15})$.
A. 7.5×10^{19} B. 7.5×10^{-19}
C. 7.5×10^{11} D. 7.5×10^{-11}
E. 7.5×10

16. Simplify $-3a^8 \cdot cb^{-3} \cdot b^{12} \cdot 9c^5$.
- A. $6a^9b^5c^6$ B. $-27a^8b^9c^5$
 C. $-27a^8b^9c^6$ D. $-3abc$
 E. $-27a^8b^{15}c^6$
17. A support wire from the top of a tower is 100 ft long. It is anchored at a spot 60 ft from the base of the tower. Find the height of the tower.
- A. 80 ft B. 40 ft C. 160 ft
 D. 20 ft E. $4\sqrt{10}$ ft
18. Triangle DEF is a right triangle with a right angle at F . Which of the following is *false*?
- A. $\sin D = \frac{EF}{DE}$ B. $\tan D = \frac{EF}{DF}$
 C. $\cos D = \frac{DE}{DF}$ D. $\cos E = \frac{EF}{DE}$
 E. $\sin E = \frac{DF}{DE}$

Compare the boxed quantity in Column A with the boxed quantity in Column B. Choose the best answer.

- A. The quantity in Column A is greater.
 B. The quantity in Column B is greater.
 C. The two quantities are equal.
 D. The relationship cannot be determined on the basis of the information supplied.

Column A

Column B

19.

$f(4)$ when $f(x) = 2x^2 - 23$

$f(3)$ when $f(x) = x^2 + 5$

Use the equation $y = -12x + 2$.

20.

the slope

the y-intercept

Use $2x - y = 3$ and $0.5(4x - 2y) = 3$.

21.

x

y

Find each answer.

22. **Open-ended** Write two quadratic trinomials that cannot be factored.
23. a. Find the x -intercepts of the function $y = 4x^2 - 9x + 2$.
 b. Make a sketch of the function.
24. Solve the system using elimination:
 $x + y = 34$
 $x - y = 16$
25. Graph the system: $y > x^2 - 3x + 5$
 $y \leq 3x + 2$
26. A bag contains 5 green cubes and 7 yellow cubes. You pick two cubes without replacing the first one.
- a. What is the probability of choosing a yellow cube and then choosing a green cube?
 b. What is the probability of choosing two yellow cubes?
27. **Writing** Explain how you can use slope to determine the equation of a line perpendicular to a given line.
28. What is the perimeter of a right triangle with legs measuring 8 ft and 15 ft?
29. Solve $\frac{-2}{x-3} = \frac{x+4}{2(x-3)} + \frac{1}{4}$.
30. **Open-ended** Describe a situation that you can model with a two-step equation. Define what the variable represents, then solve the equation.
31. Russell wanted to purchase a computer that costs \$1575. With a different disk drive, the cost of the computer rose 8%. How much will the upgraded computer cost?
32. **Writing** Explain how to use the distributive property to multiply binomials.
33. Workers at a local charity worked the following numbers of hours: 3, 5, 9, 5, 8, 4, 2, 10, 7, 3, 4, 6.
- a. Find the mean.
 b. Find the range of the data.
 c. Find the standard deviation.