

Multiple Choice

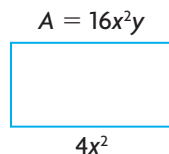
- Which expression has the greatest value?
 - $-5 - 2 + 4$
 - $3 - 12 + 2$
 - $-7 - (-2) + 1$
 - $5 - (-3) - 10 - 7 - (-2) + 1$
- Which expression has a positive value?
 - $(-9.3)^2$
 - -9.3^2
 - $(-9.3)^3$
 - -9.3^3
- Which of these is not equal to $-5\frac{1}{5}$?
 - $-\frac{26}{5}$
 - $-5 + \frac{1}{5}$
 - -5.2
 - $-5 - \frac{1}{5}$
- Which two numbers have a product of 7^8 and a quotient of 7^4 ?
 - 7^6 and 7^1
 - 7^3 and 7^2
 - 7^9 and 7^4
 - 7^6 and 7^2
- Which expression is not equal to 2^9 ?
 - 8^3
 - $\frac{(36^3)^3}{(18^3)^3}$
 - $(2^3)(2^3)$
 - $(2^4)(2^3)(2)(2)$

- Which expression do the tiles represent?

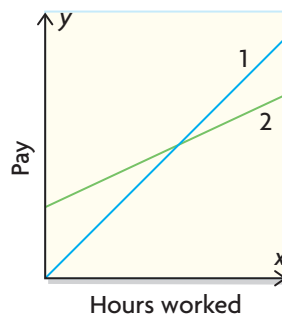


- $(x^2 + 2x + 4) - (3x^2 - 3x + 1)$
 - $(x^2 + 2x + 4) - 3x^2 + 3x + 1$
 - $(-3x^2 + 3x + 1) + (x^2 + 2x + 4)$
 - $(-3x^2 - 3x - 1) + (x^2 + 2x + 4)$
- Identify the simplification of $12 - 9(x - 5) - (3x + 4)$.
 - $-12x - 37$
 - $-6x - 19$
 - $-11x - 13$
 - $-12x + 53$

- The area and length of a rectangle are shown. Determine the missing side.



- $4y$
 - $4xy$
 - $12y$
 - $12xy$
- Read these statements about the graph.
 - Line 1 is a direct variation.
 - Pay is the independent variable.
 - Line 2 represents a lower-paying job than line 1.



Which choice best represents the statements?

- Only i) is true.
 - Only ii) is true.
 - Both i) and ii) are true.
 - Both i) and iii) are true.
- Which statement is false?
 - A line with a negative slope rises to the right.
 - A line with a positive slope rises to the right.
 - The y -intercept of a line is the point where the x -coordinate is 0.
 - If the rate of change of a relation is positive, then its graph goes up from left to right.

11. Identify the correct sum of $3\frac{3}{8} + \left(-2\frac{1}{6}\right)$.
- A. $1\frac{5}{24}$ C. $1\frac{1}{14}$
 B. $5\frac{13}{24}$ D. $-1\frac{5}{24}$
12. Identify the correct difference: $-\frac{3}{5} - 2\frac{1}{4}$
- A. $-2\frac{4}{9}$ C. $-1\frac{11}{20}$
 B. $-2\frac{17}{20}$ D. $-2\frac{7}{20}$
13. Which of the following is farthest to the right of zero on a number line?
- A. $\left(\frac{5}{8}\right)^2$ C. $\left(-1\frac{2}{3}\right)^2$
 B. $\left(\frac{-7}{8}\right)^2$ D. $\left(1\frac{1}{4}\right)^2$
14. Which of the following has a value of 1?
- A. $1\frac{1}{2} \times \frac{1}{2}$ C. $\frac{3}{5} \div 1\frac{2}{3}$
 B. $-\frac{3}{4} \times 1\frac{1}{3}$ D. $-2\frac{1}{4} \div \left(-2\frac{1}{4}\right)$
15. Which of the following are like terms?
- A. $2x$ and $3x^2$ C. $-6a^2$ and $-6a^3$
 B. $-5y$ and $4x$ D. $7c$ and $-9c$
16. What is the value of $4(2x - 3) + 6x^2$ when $x = -1$?
- A. -26 C. 14
 B. 26 D. -14
17. Which one of these ordered pairs is not on the graph of $y = -3x - 2$?
- A. $(4, -14)$ C. $(-1, 1)$
 B. $(-2, 3)$ D. $(0, -2)$
18. What is the slope of the line that passes through $A(-4, 7)$ and $B(3, -2)$?
- A. $\frac{9}{-7}$ C. $\frac{9}{7}$
 B. $\frac{-7}{9}$ D. $\frac{7}{9}$
19. What are the x - and y -intercepts of $-2x - 5y = 20$?
- A. $x = 10$ and $y = -4$
 B. $x = -10$ and $y = -4$
 C. $x = -10$ and $y = 4$
 D. $x = 10$ and $y = 4$
20. Sara rents a car for a day. She is charged for \$35 plus \$0.20/km. Which one of the following statements is false?
- A. The initial cost value is \$35.
 B. The rate of change is \$0.20/km.
 C. The relation between cost and distance driven is a direct variation.
 D. It will cost Sara \$55 to rent the car for one day and drive 100 km.
21. Which of the following statements are true?
- A. The first differences of a linear relation are constant.
 B. The equation of a linear relation has a degree of 1.
 C. The first differences of a nonlinear relation are not constant.
 D. All of the above.
22. A rectangle has a perimeter of 120 cm. Which of the following dimensions are not possible for this rectangle?
- A. length 55 cm and width 5 cm
 B. length 45 cm and width 15 cm
 C. length 26 cm and width 24 cm
 D. length 37 cm and width 23 cm

Investigation

Guessing the Second Number

Here is a number game for two people.

- Your partner tells you a number.
- Your partner multiplies this first number by 3.
- Your partner adds the product to a second number, so that the sum is 5.
- You guess what the second number is.

23. a) Why might you represent the relation in this game as shown?

b) Identify the relation between the first and second number as linear or nonlinear. Use as many different strategies as you can. Show what you did.

c) Use each number as the first number in the game. What is the second number?

i) -2 ii) $\frac{3}{2}$ iii) $\frac{15}{8}$ iv) $-\frac{3}{5}$

d) Here is another number game for two people.

- Your partner tells you a number.
- Your partner multiplies this first number by $\frac{4}{9}$.
- Your partner adds the product to $\frac{1}{3}$ of a second number, so that the sum is $\frac{1}{2}$.

• You guess what the second number is.

i) How are the equations for the two games alike? How are they different?

ii) How are the graphs for the two games alike? How are they different?

e) Make up your own game, with both of these properties.

- If the first number is $\frac{1}{2}$, then the second number is $-\frac{4}{5}$;
- The graph is the same shape as that of the game in part d).

