

Entry-Level Assessment

Multiple Choice

Read each question. Then write the letter of the correct answer on your paper.

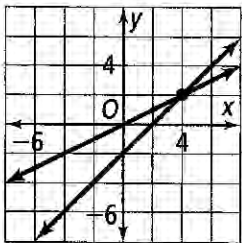
1. Sophia had \$50 she put into a savings account. If she saves \$15 per week for one year, how much will she have saved altogether?

(A) \$50 (C) \$780
(B) \$65 (D) \$830

2. Which set below is the domain of $\{(2, -3), (-1, 0), (0, 4), (-1, 5), (4, -2)\}$?

(F) $\{-3, 0, 4, 5, -2\}$ (H) $\{2, -1, 4\}$
(G) $\{-3, 4, 5, -2\}$ (I) $\{2, -1, 0, 4\}$

3. Which ordered pair is the solution of the system of equations graphed below?



(A) (4, 1) (C) (4, 2)
(B) (1, 4) (D) (2, 4)

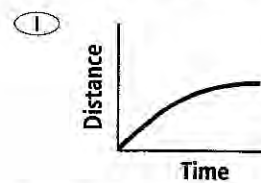
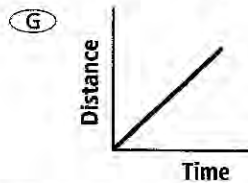
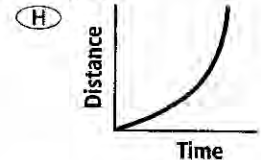
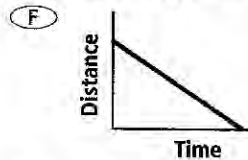
4. The Martins keep goats and chickens on their farm. If there are 23 animals with a total of 74 legs, how many of each type of animal are there?

(F) 14 chickens, 9 goats
(G) 19 chickens, 4 goats
(H) 9 chickens, 14 goats
(I) 4 chickens, 19 goats

5. Which equation represents the phrase "six more than twice a number is 72"?

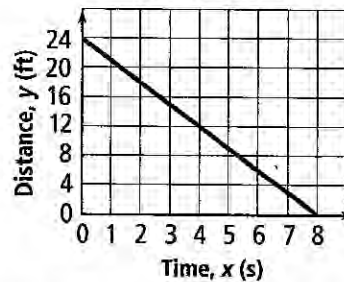
(A) $6 + x = 72$ (C) $2 + 6x = 72$
(B) $2x = 6 + 72$ (D) $6 + 2x = 72$

6. Which of the following graphs best represents a person walking slowly and then speeding up?



7. The graph below shows the time it takes Sam to get from his car to the mall door.

Walking From Car to Mall



Which of the following best describes the x -intercept?

(A) Sam's car was parked 24 ft from the mall door.
(B) After 24 s, Sam reached the mall door.
(C) Sam's car was parked 8 ft from the mall door.
(D) After 8 s, Sam reached the mall door.

8. What is 23.7×10^4 written in standard notation?

(F) 0.00237
(G) 0.0237
(H) 237,000
(I) 2,370,000

9. What equation do you get when you solve

$$2x + 3y = 12 \text{ for } y?$$

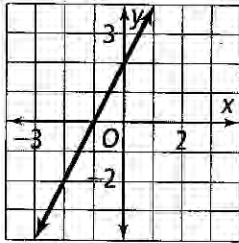
- (A) $y = -\frac{2}{3}x + 4$
 (B) $y = -\frac{2}{3}x + 12$
 (C) $y = -2x + 12$
 (D) $y = 12 - 2x$

10. The formula for the circumference of a circle is

$$C = 2\pi r. \text{ What is the formula solved for } r?$$

- (F) $r = C \cdot 2\pi$ (H) $r = 2\pi$
 (G) $r = \frac{C}{2\pi}$ (I) $r = \frac{C\pi}{2}$

11. Which table of values was used to make the following graph?



(A)

x	-3	-1	0	1
y	-2	-1	2	4

(B)

x	-3	-2	0	1
y	4	2	2	4

(C)

x	-3	-1	0	1
y	-4	0	2	4

(D)

x	-3	-2	0	1
y	-3	-2	2	4

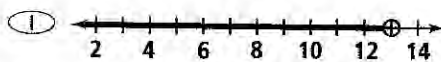
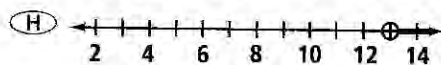
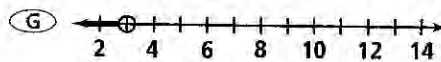
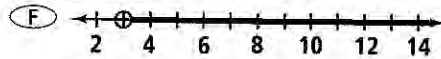
12. A jewelry store marks up the price of a topaz ring 215%. The store paid \$70 for the ring. For how much is the store selling the ring?

- (F) \$91.50 (H) \$161.50
 (G) \$150.50 (I) \$220.50

13. What is the solution of $-3p + 4 < 22$?

- (A) $p < -6$ (C) $p < 18$
 (B) $p > -6$ (D) $p > 18$

14. Which of the graphs below shows the solution of $-5 + x > 8$?



15. Between which two whole numbers does $\sqrt{85}$ fall?

- (A) 8 and 9 (C) 41 and 42
 (B) 9 and 10 (D) 42 and 43

16. What is the simplified form of $\frac{6 + 3^2}{(2^3)(3)}$?

- (F) $\frac{1}{3}$ (H) $\frac{5}{8}$
 (G) $\frac{1}{2}$ (I) $\frac{5}{6}$

17. Which of the following expressions is equivalent to $\frac{4^3}{4^6}$?

- (A) $\frac{1}{4^3}$ (C) 4^2
 (B) $\frac{1}{4^2}$ (D) 4^3

18. What is 40,500,000 written in scientific notation?

- (F) 4.05×10^7 (H) 4.05×10^{-6}
 (G) 4.05×10^6 (I) 4.05×10^{-7}

19. There are $3\frac{3}{4}$ c of flour, $1\frac{1}{2}$ c of sugar, $\frac{2}{3}$ c of brown sugar, and $\frac{1}{4}$ c of oil in a cake mix. How many cups of ingredients are there in all?

- (A) $4\frac{1}{2}$ c (C) $5\frac{1}{2}$ c
 (B) $5\frac{1}{6}$ c (D) $6\frac{1}{6}$ c

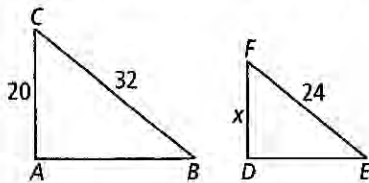
20. Cathy ran for 30 min at a rate of 5.5 mi/h. Then she ran for 15 min at a rate of 6 mi/h. How many miles did she run in all?

- (F) 2.75 mi (H) 4.25 mi
 (G) 4.375 mi (I) 5.75 mi

21. A 6-ft-tall man casts a shadow that is 9 ft long. At the same time, a tree nearby casts a 48 ft shadow. How tall is the tree?

- (A) 32 ft (C) 45 ft
 (B) 36 ft (D) 72 ft

22. Triangle ABC is similar to triangle DEF . What is x ?



- (F) 7 (H) 15
 (G) 12 (I) 27

23. Which side lengths given below can form a right triangle?

- (A) 12, 13, 17
 (B) 3.2, 5.6, 6.4
 (C) 14, 20, 24
 (D) 10, 24, 26

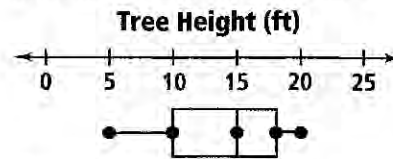
24. The formula $F = \frac{9}{5}C + 32$ converts temperatures in degrees Celsius C to temperatures in degrees Fahrenheit F . What is 35°C in degrees Fahrenheit?

- (F) 20°F (H) 95°F
 (G) 67°F (I) 120°F

25. A bowling ball is traveling at 15 mi/h when it hits the pins. How fast is the bowling ball traveling in feet per second? (*Hint*: 1 mi = 5280 ft)

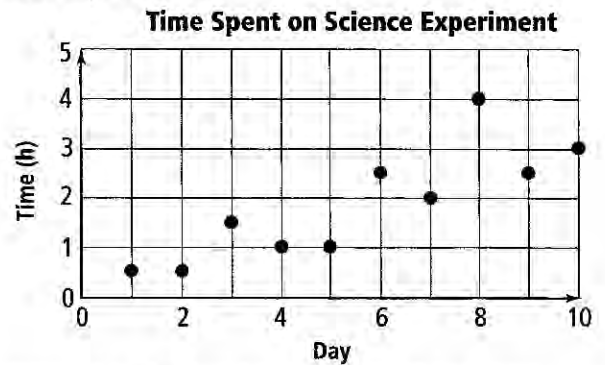
- (A) 11 ft/s
 (B) 88 ft/s
 (C) 22 ft/s
 (D) 1320 ft/s

26. What is the median of the tree height data displayed in the box-and-whisker plot below?



- (F) 5 (H) 15
 (G) 10 (I) 20

27. Helena tracked the number of hours she spent working on a science experiment each day in the scatter plot below.



Between which two days was there the greatest increase in the number of hours Helena spent working on her science experiment?

- (A) Day 2 and 3
 (B) Day 7 and 8
 (C) Day 5 and 6
 (D) Day 9 and 10

28. Your grades on four exams are 78, 85, 97, and 92. What grade do you need on the next exam to have an average of 90 on the five exams?

- (F) 71 (H) 98
 (G) 92 (I) 100

29. The number of points scored by a basketball team during the first 8 games of the season are shown below.

65 58 72 74 82 67 75 71

How much will their average game score increase by if the team scores 93 points in the next game?

- (A) 2.5 (C) 11.6
 (B) 10.5 (D) 19.5

Chapter Test



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Do you know HOW?

- Write an algebraic expression for the phrase *the quotient of n and 6*.
- Write a word phrase for $-12t + 2$.
- Evaluate the expression $-(pq)^2 \div (-8)$ for $p = 2$ and $q = 4$.
- Dance** The table shows how the total cost of dance classes at a studio depends on the number of classes you take. Write a rule in words and as an algebraic expression to model the relationship.

Dance Classes

Number of Classes	Total Cost
1	$(1 \times 15) + 20$
2	$(2 \times 15) + 20$
3	$(3 \times 15) + 20$

Simplify each expression.

- $-20 - (-5) \cdot (-2^2)$
- $\left(-\frac{1}{4}\right)^3$
- $-\frac{7ab}{a}, a \neq 0$
- $-|-25|$
- $\sqrt{\frac{16}{25}}$
- Is each statement true or false? If false, give a counterexample.
 - For all real numbers a and b , $a \cdot b$ is equivalent to $b \cdot a$.
 - For all real numbers a and b , $a(b \cdot c) = ab \cdot ac$
- Is the ordered pair $(2, -5)$ a solution to the equation $4 + 3x = -2y$? Show your work.
- Order the numbers $-\frac{7}{8}, \frac{7}{4}, -1\frac{4}{5}$, and $-\frac{13}{16}$ from least to greatest.

- Soccer** There are t teams in a soccer league. Each team has 11 players. Make a table, write an equation, and draw a graph to describe the total number of players p in the league. How many players are on 17 teams?

Simplify each expression.

- $5x^2 - x^2$
- $12 \div \left(-\frac{3}{4}\right)$
- $-(-2 + 6t)$
- $-3[b - (-7)]$
- Name the subset(s) of the real numbers to which each number belongs.
 - -2.324
 - $\sqrt{46}$
- Identify each property.
 - $a(b + c) = ab + ac$
 - $(a + b) + c = a + (b + c)$

Do you UNDERSTAND?

- Is the set of positive integers the same as the set of nonnegative integers? Explain.
- Error Analysis** Find and correct the error in the work shown at the right.

$$\begin{array}{r} 3 \cdot 5 + -9 \div 4 + 3^2 \\ -15 + -9 \div 4 + 9 \\ -24 \div 4 + 9 \\ -6 + 9 \\ 3 \end{array}$$
- Is the following statement true or false? If the product of three numbers is negative, then all the numbers are negative. If false, give a counterexample.
- Reasoning** You notice that $10^\circ\text{C} = 50^\circ\text{F}$, $20^\circ\text{C} = 68^\circ\text{F}$, and $30^\circ\text{C} = 86^\circ\text{F}$. Use inductive reasoning to predict the value in degrees Fahrenheit of 40°C .
- Reasoning** When is the absolute value of a difference equal to the difference of the absolute values? Explain.