

Algebraic Word Problems

Foundation to Challenge

Practice should make the test feel easier, not merely familiar.

Work without the answer key first. Check answers through the SAT Practice Library after completing the set.

STANDARD

- 1** A charity walk pays a team \$40 for each half-hour walked after the first 2 hours. If the team walks $h \geq 2$ hours, which expression gives the total earnings?
- A. $40(h - 2)$
 - B. $80(h - 2)$
 - C. $40h - 2$
 - D. $80h - 2$

FOUNDATION

- 2** There are m teams with n students each. Each student receives 3 snack bars, and boxes contain 12 bars. If mn is divisible by 4, how many full boxes are needed?
- A. $\frac{mn}{4}$
 - B. $\frac{mn}{12}$
 - C. $3mn$
 - D. $\frac{mn}{3}$

STANDARD

- 3** Each carton holds x bottles. Each worker fills y bottles per day. How many cartons are needed for $4x$ workers working 3 days?
- A. $12y$
 - B. $12x^2y$
 - C. $\frac{4xy}{3}$
 - D. $12xy$

FOUNDATION

- 4 A reactor temperature rises d degrees every m minutes from an initial t degrees. What is the temperature after x minutes?

- A. $t + \frac{mx}{d}$
B. $t + \frac{md}{x}$
C. $t + dx$
D. $t + \frac{dx}{m}$

STANDARD

- 5 The first ticket costs a dollars. Each additional ticket costs 30% less than the first. What is the cost of $n > 1$ tickets?

- A. $a + (n - 1)(0.3a)$
B. $a + (n - 1)(0.7a)$
C. $0.7an$
D. $a + n(0.7a)$

FOUNDATION

- 6 d dollars buys p tokens. A game costs w tokens. What is the dollar cost per game?

- A. $\frac{w}{dp}$
B. $\frac{d}{pw}$
C. $\frac{dw}{p}$
D. $\frac{dp}{w}$

- 7 A factory makes b parts in n days at c dollars per part. At the same rate, what is the total cost of parts made in m days?
- A. bcm/n
 - B. bmn/c
 - C. $\frac{mc}{bn}$
 - D. $\frac{bc}{mn}$

- 8 A cafe usually sells n meals at p dollars each. Today price is reduced 20% and quantity sold increases 25%. What is today's revenue?
- A. np
 - B. $0.8np$
 - C. $1.05np$
 - D. $1.25np$

FOUNDATION

- 9 A plane descends from 31,200 ft to 24,000 ft in 16 minutes at a constant rate. Which equation gives altitude A after t minutes?
- A. $A = 31200 - 450t$
 - B. $A = 24000 + 450t$
 - C. $A = 31200 - 7200t$
 - D. $A = 24000 - 450t$

STANDARD

- 10 A vehicle travels 72 miles per hour and uses 6 miles per gallon. Starting with 180 gallons, which equation gives gallons g remaining after t hours?
- A. $g = 180 - 12t$
 - B. $g = 180 - 6t$
 - C. $g = 180 - 72t$
 - D. $g = 180 - \frac{t}{12}$

- 11** A store has a monthly fixed cost of \$4,000 and a monthly salary cost of \$2,200 per employee. With x employees for a full year, what is the annual cost?
- A. $4000 + 2200x$
 - B. $12(4000 + 2200x)$
 - C. $48000 + 2200x$
 - D. $4000 + 26400x$

ADVANCED

- 12** A taxi charges a dollars for the first mile and b dollars for each additional mile. A ride longer than one mile costs \$30. Which expression gives total miles traveled?
- A. $\frac{30 - a}{b}$
 - B. $\frac{30 - a + b}{b}$
 - C. $\frac{30 + a - b}{b}$
 - D. $\frac{30 - a - b}{b}$

- 13** A blue token is \$3 more than a red token, and a red token is \$2 more than a green token. If 4 green tokens cost m dollars, what is the value of 8 blue and 4 red tokens?
- A. $3m + 48$
 - B. $3m + 40$
 - C. $12m + 48$
 - D. $m + 48$

14

A 24,000-gallon pool is $\frac{3}{8}$ full. A pump delivers g gallons every m minutes and costs d dollars per minute to operate. What is the cost to fill the pool?

A. $\frac{15000md}{g}$

B. $\frac{9000gd}{m}$

C. $\frac{15000gd}{m}$

D. $\frac{9000md}{g}$

CHALLENGE

15

A runner completes three 2-mile races in x , y , and z minutes. What is average speed, in miles per hour, over all three races?

A. $\frac{x+y+z}{6}$

B. $\frac{6}{x+y+z}$

C. $\frac{180}{x+y+z}$

D. $\frac{360}{x+y+z}$

FINISHED?

Check your answers online

aryalanupme.github.io/sat-algebra-word-problems.html

Do not stop at “wrong.” Identify why it was wrong: concept, algebra, arithmetic, interpretation, calculator choice, or timing.

I do not correct the answer first. I correct the reason.

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