

A.A.1: Expressions 3: Translate a quantitative verbal phrase into an algebraic expression

- 1 If x represents a given number, the expression "5 less than twice the given number" is written as
 - 1) $5 < 2x$
 - 2) $5 < 2 + x$
 - 3) $2x - 5$
 - 4) $5 - 2x$
- 2 Which expression represents "5 less than the product of 7 and x "?
 - 1) $7(x - 5)$
 - 2) $7x - 5$
 - 3) $7 + x - 5$
 - 4) $5 - 7x$
- 3 If rain is falling at the rate of 2 inches per hour, how many inches of rain will fall in x minutes?
 - 1) $2x$
 - 2) $\frac{30}{x}$
 - 3) $\frac{60}{x}$
 - 4) $\frac{x}{30}$
- 4 Which expression represents the number of yards in x feet?
 - 1) $\frac{x}{12}$
 - 2) $\frac{x}{3}$
 - 3) $3x$
 - 4) $12x$
- 5 Tara buys two items that cost d dollars each. She gives the cashier \$20. Which expression represents the change she should receive?
 - 1) $20 - 2d$
 - 2) $20 - d$
 - 3) $20 + 2d$
 - 4) $2d - 20$
- 6 A hockey team played n games, losing four of them and winning the rest. The ratio of games won to games lost is
 - 1) $\frac{n-4}{4}$
 - 2) $\frac{4}{n-4}$
 - 3) $\frac{4}{n}$
 - 4) $\frac{n}{4}$
- 7 A ship sailed t miles on Tuesday and w miles on Wednesday. Which expression represents the average distance per day traveled by the ship?
 - 1) $2(t+w)$
 - 2) $t + \frac{w}{2}$
 - 3) $\frac{t+w}{2}$
 - 4) $t-w$
- 8 The sum of Scott's age and Greg's age is 33 years. If Greg's age is represented by g , Scott's age is represented by
 - 1) $33 - g$
 - 2) $g - 33$
 - 3) $g + 33$
 - 4) $33g$
- 9 In the Ambrose family, the ages of the three children are three consecutive even integers. If the age of the youngest child is represented by $x + 3$, which expression represents the age of the oldest child?
 - 1) $x + 5$
 - 2) $x + 6$
 - 3) $x + 7$
 - 4) $x + 8$

- 10 The width, w , of a rectangular rug is 4 less than its length, ℓ . Which expression represents the area of the rug?
- 1) $\ell(4 - \ell)$
 - 2) $\ell(\ell - 4)$
 - 3) $2(\ell - 4) + 2\ell$
 - 4) $2w + 2\ell$
- 11 If $2n + 1$ represents an odd integer, the next larger odd integer is represented by
- 1) $2n + 3$
 - 2) $2n + 2$
 - 3) $2n$
 - 4) $2n - 1$
- 12 If $n - 3$ is an even integer, what is the next larger consecutive even integer?
- 1) $n - 5$
 - 2) $n - 1$
 - 3) $n + 1$
 - 4) $n + 2$
- 13 If the number represented by $n - 3$ is an odd integer, which expression represents the next greater odd integer?
- 1) $n - 5$
 - 2) $n - 2$
 - 3) $n - 1$
 - 4) $n + 1$
- 14 If $n + 4$ represents an odd integer, the next larger odd integer is represented by
- 1) $n + 2$
 - 2) $n + 3$
 - 3) $n + 5$
 - 4) $n + 6$
- 15 The larger of two consecutive integers is represented by $x + 4$. Which expression represents the smaller integer?
- 1) $x + 2$
 - 2) $x + 3$
 - 3) $x + 5$
 - 4) $x + 6$
- 16 Which expression represents the product of two consecutive odd integers, where n is an odd integer?
- 1) $n(n + 1)$
 - 2) $n(n + 2)$
 - 3) $n(n + 3)$
 - 4) $2n + 1$
- 17 A store advertises that during its Labor Day sale \$15 will be deducted from every purchase over \$100. In addition, after the deduction is taken, the store offers an early-bird discount of 20% to any person who makes a purchase before 10 a.m. If Hakeem makes a purchase of x dollars, $x > 100$, at 8 a.m., what, in terms of x , is the cost of Hakeem's purchase?
- 1) $0.20x - 15$
 - 2) $0.20x - 3$
 - 3) $0.85x - 20$
 - 4) $0.80x - 12$
- 18 Mr. Cash bought d dollars worth of stock. During the first year, the value of the stock tripled. The next year, the value of the stock decreased by \$1200.
- (a) Write an expression in terms of d to represent the value of the stock after two years.
- (b) If an initial investment is \$1,000, determine its value at the end of 2 years.
- 19 Ashanti and Maria went to the store to buy snacks for their back-to-school party. They bought bags of chips, pretzels, and nachos. They bought three times as many bags of pretzels as bags of chips, and two fewer bags of nachos than bags of pretzels. If x represents the number of bags of chips they bought, express, in terms of x , how many bags of snacks they bought in all.

A.A.1: Expressions 3: Translate a quantitative verbal phrase into an algebraic expression

Answer Section

1 ANS: 3 REF: 010820a TOP: Expressions

2 ANS: 2 REF: 010604a TOP: Expressions

3 ANS: 4

$$\frac{2 \text{ inches}}{\text{hour}} \times \frac{1 \text{ hour}}{60 \text{ minutes}} = \frac{1 \text{ inch}}{30 \text{ minutes}}, \quad \frac{1 \text{ inch}}{30 \text{ minutes}} \times x \text{ minutes} = \frac{x}{30} \text{ inches}$$

REF: 060014a TOP: Expressions

4 ANS: 2

$$x \text{ feet} \times \frac{1 \text{ yard}}{3 \text{ feet}} = \frac{x}{3} \text{ yards}$$

REF: 010427a TOP: Expressions

5 ANS: 1 REF: 060408a TOP: Expressions

6 ANS: 1 REF: 080002a TOP: Expressions

7 ANS: 3 REF: 010903a TOP: Expressions

8 ANS: 1 REF: 080509a TOP: Expressions

9 ANS: 3

The distance between two consecutive even integers is 2. $(x + 3) + 4 = x + 7$

REF: 080716a TOP: Expressions

10 ANS: 2 REF: 080811a TOP: Expressions

11 ANS: 1

The distance between consecutive odd integers is 2. $(2n + 1) + 2 = 2n + 3$

REF: 060806a TOP: Expressions

12 ANS: 2

The distance between consecutive odd integers is 2. $(n - 3) + 2 = n - 1$

REF: spring9804a TOP: Expressions

13 ANS: 3

The distance between consecutive odd integers is 2. $(n - 3) + 2 = n - 1$

REF: 010006a TOP: Expressions

14 ANS: 4

The distance between consecutive odd integers is 2. $(n + 4) + 2 = n + 6$

REF: 010506a TOP: Expressions

15 ANS: 2

The distance between consecutive integers is 1. $(x + 4) - 1 = x + 3$

REF: 010824a TOP: Expressions

16 ANS: 2

The distance between consecutive odd integers is 2.

REF: 010712a TOP: Expressions

17 ANS: 4

$$0.80(x - 15) = 0.80x - 12$$

REF: 060113b TOP: Expressions

18 ANS:

$$3d - 1200, 1800. \quad 3(1000) - 1200 = 1800.$$

REF: spring9824a TOP: Expressions

19 ANS:

$$7x - 2. \text{ Let chips} = x, \text{ then pretzels} = 3x \text{ and nachos} = 3x - 2. \quad x + 3x + 3x - 2 = 7x - 2.$$

REF: 010224a TOP: Expressions