

**A.SSE.A.1: Modeling Expressions 3**

- 1 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)  $n + 2$
- 2 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)  $n + 1$
- 3 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)  $n + 6$
- 4 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)  $2n + 1$
- 5 If  $2n + 1$  represents an odd integer, the next larger odd integer is represented by
  - 1)  $2n + 3$
  - 2)  $2n + 2$
  - 3)  $2n$
  - 4)  $2n - 1$
- 6 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)  $x + 6$
- 7 Which expression represents "5 less than the product of 7 and  $x$ "?
  - 1)  $7(x - 5)$
  - 2)  $7x - 5$
  - 3)  $7 + x - 5$
  - 4)  $5 - 7x$
- 8 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)  $5 - 2x$
- 9 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)  $\frac{x}{30}$
- 10 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)  $\frac{n}{4}$
- 11 Which expression represents the number of yards in  $x$  feet?
  - 1)  $\frac{x}{12}$
  - 2)  $\frac{x}{3}$
  - 3)  $3x$
  - 4)  $12x$

- 12 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)  $2d - 20$
- 13 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)  $t - w$
- 14 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)  $33g$
- 15 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)  $x + 8$
- 16 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)  $0.80x - 12$
- 17 The width,  $w$ , of a rectangular rug is 4 less than its length,  $\ell$ . Which expression represents the area of the rug?
- 1)  $\ell(4 - \ell)$
  - 2)  $\ell(\ell - 4)$
  - 3)  $2(\ell - 4) + 2\ell$
  - 4)  $2w + 2\ell$
- 18 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.
- 19 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.

**A.SSE.A.1: Modeling Expressions 3****Answer Section**

1 ANS: 2

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

REF: spring9804a

2 ANS: 3

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

REF: 010006a

3 ANS: 4

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

REF: 010506a

4 ANS: 2

The distance between consecutive odd integers is 2.

REF: 010712a

5 ANS: 1

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

REF: 060806a

6 ANS: 2

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

REF: 010824a

7 ANS: 2

REF: 010604a

8 ANS: 3

REF: 010820a

9 ANS: 4

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

REF: 060014a

10 ANS: 1

REF: 080002a

11 ANS: 2

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

REF: 010427a

12 ANS: 1

REF: 060408a

13 ANS: 3

REF: 010903a

14 ANS: 1

REF: 080509a

15 ANS: 3

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

REF: 080716a

16 ANS: 4

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

REF: 060113b

17 ANS: 2 REF: 080811a

18 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

19 ANS:

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

REF: spring9824a