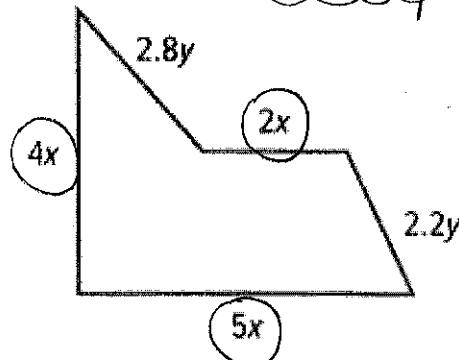


Unit 1: Algebraic Expressions **STUDY GUIDE**

For exercises #1-5, select the algebraic expression that best represents the statement.

<p>1.) Five less than a number</p> <p>a. <math>5 - x</math>      <b>b. <math>x - 5</math></b></p> <p>c. <math>5x</math>              d. <math>\frac{x}{5}</math></p>	<p>2.) The quotient of seven and a number</p> <p>a. <math>x + 7</math>      b. <math>x - 7</math></p> <p>b. <math>7x</math>              <b>d. <math>\frac{7}{x}</math></b></p>
<p>3.) What is the value of the expression below when <math>x = 4</math>?</p> <p style="text-align: center;"><math>5x + 3</math>  <math>5(4) + 3</math>  <math>20 + 3</math></p> <p style="text-align: right;"><b>23</b></p>	<p>4.) What is the value of the expression when <math>x = 12</math>?</p> <p style="text-align: center;"><math>\frac{30 - 6}{x} = \frac{24}{12}</math></p> <p style="text-align: right;"><b>2</b></p>
<p>5.) What is the value of <math>-5(m - 2)</math> when <math>m = -1</math>?</p> <p style="text-align: center;"><math>-5(-1 - 2)</math>  <math>-5(-3)</math></p> <p style="text-align: right;"><b>15</b></p>	
<p>6.) Which expression below has been simplified using the correct procedure?</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: left;"> <p><math>5 - 6(x + 8)</math>  <math>5 - 6x + 8</math>  <math>-6x + 13</math></p> </div> <div style="text-align: center; border: 1px solid black; border-radius: 50%; padding: 10px;"> <p><math>3 + 7(x + 4)</math>  <math>3 + 7x + 28</math>  <math>7x + 31</math></p> </div> <div style="text-align: left;"> <p><math>4 - 3(x - 9)</math>  <math>4 - 3x - 27</math>  <math>-3x - 23</math></p> </div> </div>	
<p>7.) Write an algebraic expression that represents:</p> <p>A. Two less than five times a number. <u><math>2x - 5</math></u></p> <p>B. Three times the sum a number and seven. <u><math>3(x + 7)</math></u></p>	
<p>8.) Simplify: <math>10 - (z - 5) - z</math></p> <p style="text-align: center;"><math>10 - z + 5 - z</math>  <b><math>-2z + 15</math></b></p>	<p>9.) Simplify:</p> <p style="text-align: center;"><math>3(4x - 2y) - 7x</math></p> <p style="text-align: right;"><math>12x - 6y - 7x</math>  <b><math>5x - 6y</math></b></p>
<p>10.) Find the perimeter of the figure shown below:</p> <p style="text-align: center;"><b><math>11x + 5y</math></b></p> 	<p>11.) Use order of operations to evaluate the expressions below:</p> <p>A. <math>8 + 11(2) - 10</math>  <math>8 + 22 - 10</math>  <math>30 - 10</math>  <b>20</b></p> <p>B. <math>[12 \div (42 - 7 + 3)] \cdot 3</math>  <math>[12 \div (35 + 3)] \cdot 3</math>  <math>[12 \div 38] \cdot 3</math>  <math>\frac{12}{38} \cdot \frac{3}{1} = \frac{36}{38}</math>  <b><math>\frac{18}{19}</math></b></p>

12.) For a Walk-a-Thon fundraiser, a sponsor committed to give you a flat fee of \$5 plus \$2 for every mile,  $m$ , you walk. Write an expression for the total amount you will collect from your sponsor at the end of the Walk-a-Thon.

$$2m + 5$$

13.) Jessica has 8 less than 6 times the number of markers than her sister, Kelly. Write an expression to represent the number of markers Jessica has. Let  $m$  represent markers.

$$6m - 8$$

14.) Simplify:

$$8m - 2(6 - m)$$

$$8m - 12 + 2m$$

$$10m - 12$$

15.) Mrs. Murphy's class is making pillow cases. Each pillow case use  $\frac{3}{4}$  yards of fabric. What is the greatest number of pillow cases they can make out of  $12\frac{1}{2}$  yards of fabric?

$$\frac{25}{2} \div \frac{3}{4} = \frac{25}{2} \cdot \frac{4}{3} = \frac{100}{6} = 16\frac{4}{6}$$

16 CASES

16.) Which expression shows another way that  $\frac{1}{2} \div \frac{5}{8}$  can be rewritten?

A.  $\frac{1}{2} \cdot \frac{8}{5}$

B.  $\frac{1}{2} \div \frac{8}{5}$

C.  $\frac{2}{1} \div \frac{5}{8}$

D.  $\frac{5}{8} \cdot \frac{2}{1}$

17.) Evaluate:  $\frac{4}{5} - \frac{1}{4}$

$$\frac{16}{20} - \frac{5}{20} = \frac{11}{20}$$

18.) Simplify:  $\frac{1}{8} + \frac{3}{7}$

$$\frac{7}{56} + \frac{24}{56} = \frac{31}{56}$$

19.) What is the least common multiple (LCM) of 3 and 8?

3: 3, 6, 9, 12, 15, 18, 21, 24

8: 8, 16, 24, 32

24

20.) What is the greatest common factor (GCF) of 27 and 45?

9

21.) Evaluate:  $0.25 + 16 + 2.3$

$$10.00$$

$$+ 2.25$$

$$+ 2.30$$


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$$18.55$$

22.) Find the product:  $5.13 \cdot 0.09$

$$5.13 \rightarrow 2$$

$$0.09 \rightarrow 2$$

$$5.13$$

$$\cdot 0.09$$


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$$4517$$

$$+ 0000$$


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$$4617$$

0.4617

23.) What is 250 divided by 0.8?

$$0.8 \overline{)250}$$

$$8 \overline{)2500.0}$$

$$312.5$$

24.) Evaluate:  $28.10 - 0.19$

$$28.10$$

$$- 0.19$$


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$$27.91$$

27.91

25.) Find the quotient:  $20.19 \div 0.3$

$$3 \overline{)20.19}$$

$$20.19 \div 0.3$$

$$67.3$$

26.) Jonathan went to Target and purchased assorted school supplies for \$12.99, an umbrella for \$7.79, and a candy bar for \$0.50. If the tax is 6%, how much is Jonathan's total bill?

$$12.99$$

$$+ 7.79$$

$$+ 0.50$$


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$$21.28$$

$$21.28 \cdot 0.06 = 1.28$$

$$21.28 + 1.28 = 22.56$$

27.) Use order of operations to evaluate the following:

$$9 - 5 \div (8 - 3) \cdot 2 + 6$$

$$9 - 5 \div 5 \cdot 2 + 6$$

$$9 - 1 \cdot 2 + 6$$

$$9 - 2 + 6$$

$$7 + 6$$

13

$$3 \overline{)201.9}$$

$$67.3$$