

<p>1. Which statement <i>cannot</i> be justified by one of the properties of real numbers?</p> <p>A <math>(x + y) + z = x + (y + z)</math>              B <math>0 + (x + y) = (x + y) + 0</math>              C <math>(x - y) \div z = x - (y \div z)</math>              D <math>x(yz) = (xy)z</math></p>	<p>2. Which statement is <i>always</i> true?</p> <p>A <math>3 \cdot x = 3 + x</math>              B <math>x \div 3 = 3 \div x</math>              C <math>3 - x = x - 3</math>              D <math>x + \frac{1}{3}(3) = x + 1</math></p>
<p>3. What property of real numbers justifies the following statement?</p> <p><math>3a(c) + 3a(4) - 5y</math> is equivalent to <math>3a(c + 4) - 5y</math></p> <p>A Commutative property of multiplication              B Distributive property for multiplication over addition              C Multiplicative identity property              D Associative property of addition</p>	<p>4. Consider the procedure used below to solve the given equation.</p> <p>Given: <math>2(x - 5) = 19</math>              (1<sup>st</sup> step) <math>2x - 10 = 19</math>              (2<sup>nd</sup> step) <math>2x = 29</math>              (3<sup>rd</sup> step) <math>x = \frac{29}{2}</math></p> <p>Which of the following properties is a justification for the 1<sup>st</sup> step?</p> <p>A Commutative property of addition              B Distributive property              C Transitive property of equality              D Associative property of addition</p>
<p>5. Identify the properties that justify the work between Step 3 and Step 4 and between Step 5 and Step 6.</p>	
<p>Write the letter of the property in the blank provided after the step.</p> <p>Step 1: <math>2(2x + 3) = (3)(4 + x)</math>              Step 2: <math>4x + 6 = 12 + 3x</math>              Step 3: <math>4x + 6 - 3x = 12 + 3x - 3x</math> } _____              Step 4: <math>4x - 3x + 6 = 12 + 3x - 3x</math> } _____              Step 5: <math>x + 6 = 12</math> } _____              Step 6: <math>x + 6 - 6 = 12 - 6</math> } _____              Step 7: <math>x = 6</math></p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto;"> <p>A. Associative Property of Addition                  B. Commutative Property of Addition                  C. Distributive Property                  D. Identity Property of Addition                  E. Subtraction Property of Equality                  F. Multiplication Property of Equality</p> </div>	
<p>6 What is <math>g(2)</math> for <math>g(x) = \frac{1}{2}x^3 + 3x</math> ?</p>	<p>7 <math>4\sqrt[3]{x} - \sqrt{y}</math> where <math>x = 64</math> and <math>y = 49</math></p>

<p>8 <b>The function <math>f(x) = 35 + 15x</math> represents the amount of money, in dollars, Mr. Lewis earns for working <math>x</math> hours. How much money does Mr. Lewis earn for working 20 hours?</b></p>	
<p>9 <b>If <math>f(x) = \frac{\sqrt{9-x}}{8}</math> what is <math>f(5)</math>?</b></p>	<p>10 <b>What is the value of the expression <math>\frac{1}{4}(x^2 - y^3)</math> when <math>x = 5</math> and <math>y = 3</math>?</b></p>
<p><b>If <math>x = 3</math> and <math>y = 2</math></b></p> <p>11 <b>What is the value of <math>\frac{6x - 3y}{xy}</math>?</b></p> <p><b>A</b> -2  <b>B</b> -1  <b>C</b> 2  <b>D</b> 3</p>	<p>12 <b>What is the value of the expression <math>\frac{x^y + z}{z}</math> if <math>x = -4</math>, <math>y = 2</math>, and <math>z = 2</math>?</b></p> <p><b>A</b> 5  <b>B</b> 9  <b>C</b> 10  <b>D</b> 16</p>
<p>13 <b>What is the value of <math>3x + 4y</math> if <math>x = \frac{1}{3}</math> and <math>y = \frac{1}{2}</math>?</b></p>	
<p>14 <b>Lincoln High School earned \$5,100 in ticket sales for a play. The cost per ticket was \$12. Let <math>t</math> represent the number of tickets sold to the play. Which of the following equations could be used to determine how many tickets were sold to the play?</b></p> <p><b>F</b> <math>12 = 5,100t</math>  <b>G</b> <math>12t = 5,100</math>  <b>H</b> <math>t = 5,100 - 12</math>  <b>J</b> <math>t = 5,100 \cdot 12</math></p>	

15 Which statement could be represented by the expression  $n^2 + 4n$  ?

- A The square of a number increased by four
- B The square of the product of a number and four
- C The sum of two times a number and four times a number
- D The square of a number increased by four times the number

16 Joe, who is the youngest member of the wrestling team at Northwood High School, is 5 years less than one-half the age of the coach. If the coach is  $n$  years old, which expression describes Joe's age?

- F  $\frac{1}{2}n - 5$
- G  $5 - \frac{1}{2}n$
- H  $2n + 5$
- J  $2n - 5$

17. If 112 children sign up for a field trip and each vehicle carries  $x$  children, which expression could be used to determine the number vehicles needed for the trip?

- A  $112 - x$
- B  $112x$
- C  $\frac{112}{x}$
- D  $\frac{x}{112}$

18. Circle the verbal statements that correctly represent the algebraic expression  $2n - 3$ . You must circle all the correct statements

Three less than half a number, $n$	The difference between twice a number, $n$ , and three	A number, $n$ , doubled less than three
Half a number, $n$ , less than three	Three less than a number, $n$ , doubled	The difference between three and twice a number, $n$

19. Circle each expression that is equivalent to -2.

$\frac{(6 - w)^y - 13}{3y - 4y},$ when $w = 9$ and $y = 2$	$-3 x - y  + 4,$ when $x = 3$ and $y = 5$
$\frac{x^3 + x^2}{-x},$ when $x = -2$	$\frac{x + 2y}{xy},$ when $x = \frac{1}{2}$ and $y = \frac{1}{4}$