

**ALGEBRA 1 WINTER BREAK PACKET/REVIEW SHEET****Directions:** *Must show all work. Place answers on cover sheet. Due: Fri 1/6/17***EXPRESSIONS**

1.)	4.)	7.)	10.)
2.)	5.)	8.)	11.)
3.)	6.)	9.)	12.)
<b>TOTAL</b>			

**EQUATIONS/INEQUALITIES**

1.)	4.)	7.)	10.)	13.)
2.)	5.)	8.)	11.)	14.)
3.)	6.)	9.)	12.)	15.)
<b>TOTAL</b>				

**PROPERTIES OF REAL NUMBERS**

1.)	3.)	5.)	7.)	9.)
2.)	4.)	6.)	8.)	10.)
<b>TOTAL</b>				

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# Expressions

## WINTER BREAK PACKET

- Does  $-\sqrt{25}$  belong to each of the following sets?
 

A Whole numbers	<input type="radio"/> Yes	<input type="radio"/> No
B Rational numbers	<input type="radio"/> Yes	<input type="radio"/> No
C Irrational numbers	<input type="radio"/> Yes	<input type="radio"/> No
D Real numbers	<input type="radio"/> Yes	<input type="radio"/> No
- How many coefficients are in the expression  $\frac{1}{3}y^2 - 18y + 9 - 2y^{-2}$ ?  
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- Which of the following is a term in the expression  $-9x^3 + 12p + 6$ ?
 

A $p$	C 3
B $-9$	D 6
- What is  $7 + y(3 + y)^2$  when evaluated for  $y = -5$ ?  
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- Evaluate  $-10z + 2y \div z$  for  $z = -2$  and  $y = 6$ .  
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- Find  $-3(x - 2) \div y^2$  evaluated for  $x = 4$  and  $y = \frac{1}{2}$ .  
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- Kurt works at a cafe and earns \$16 per hour. On Wednesday, he worked  $t$  hours, and his neighbor paid him \$5 per hour to babysit for  $b$  hours. Which expression best represents the amount Kurt earned?
 

A $16t + 5$	C $16t + 5b$
B $16t - 5b$	D $16b + 5t$

- Which of the following is equivalent to  $6(2y - 4) + p$ ?
 

A $p + 12y - 24$	C $p - 6(2y - 4)$
B $6y + p - 24$	D $24 + 12y + p$
- Is each of the following a list of unlike terms, or terms that cannot be combined?
 

A $x, \frac{1}{2}x, 6x$	<input type="radio"/> Yes	<input type="radio"/> No
B $-2\frac{2}{5}, 1, 12$	<input type="radio"/> Yes	<input type="radio"/> No
C $-3t, 2.5, 4x$	<input type="radio"/> Yes	<input type="radio"/> No
D $0.5x, 6y, 21$	<input type="radio"/> Yes	<input type="radio"/> No
- The expression  $7z - 9p + 9z - z$  is equivalent to which of the following?
 

A $-2z + 8p$	C $15z + 9p$
B $8z$	D $-9p + 15z$
- What is  $3(2x + 7y) - 6x$  equivalent to after being simplified?  
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- Les bought 6 pairs of shorts for  $s$  dollars each and 2 pairs of pants that cost  $p$  dollars each. He also bought a blazer that cost three times as much as a pair of shorts. Write an expression that represents the total amount Les spent.  
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# Equations and Inequalities in One Variable

## WINTER BREAK PACKET

1. What is  $\frac{7(5+2x)}{y^2}$  evaluated for  $x = -\frac{1}{2}$  and  $y = 2$ ?

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2. Solve  $7 + \frac{x}{4} = 5$  for  $x$ .

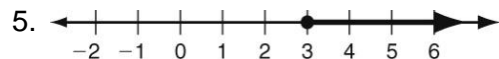
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3. What is the best first step for solving the equation  $-1.8 = \frac{2z-18}{5}$ ?

- A Add 18 to both sides of the equation.
- B Subtract 18 from both sides of the equation.
- C Multiply both sides of the equation by 5.
- D Divide both sides of the equation by 1.8.

4. What is the solution for the equation  $0.7m - 3.2 = 2.5 + 1.2m$ ?

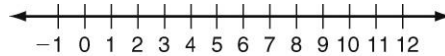
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Does each inequality have solutions that match those graphed on the number line above?

- A  $45 \leq 15x$   Yes  No
- B  $\frac{x}{3} < 1$   Yes  No
- C  $\frac{x}{6} \geq \frac{1}{2}$   Yes  No

6. Graph the solutions of  $\frac{x}{4} + 6\frac{1}{4} > 7\frac{1}{2}$ .



7. Choose True or False for each statement about the solutions of  $6 - 5x > -9$ .

- A The solutions are all less than  $-3$ .  
 True  False
- B The solutions are all less than 3.  
 True  False
- C The solution set includes 0.  
 True  False
- D The solution set includes  $-6$ .  
 True  False

8. What are the solutions of  $7(4 - y) \leq 9y + 20$ ?

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9. The equation for finding the area of a trapezoid is  $A = \frac{1}{2}(b_1 + b_2)h$ . What is the equation solved for  $h$ ?

- A  $h = \frac{A}{b_1 + b_2}$
- B  $h = \frac{2A}{b_1 + b_2}$
- C  $h = \frac{1}{2}(b_1 + b_2)$
- D  $h = 2A - b_1 - b_2$



# Properties of Real Numbers

## WINTER BREAK PACKET

<p>1 When solving the equation <math>4(3x^2 + 2) - 9 = 8x^2 + 7</math>, Emily wrote <math>4(3x^2 + 2) = 8x^2 + 16</math> as her first step. Which property justifies Emily's first step?</p> <ol style="list-style-type: none"> <li>1) addition property of equality</li> <li>2) commutative property of addition</li> <li>3) multiplication property of equality</li> <li>4) distributive property of multiplication over addition</li> </ol>	<p>6 The additive inverse of <math>\frac{1}{a}</math> is</p> <ol style="list-style-type: none"> <li>1) <math>-\frac{1}{a}</math></li> <li>2) <math>-a</math></li> <li>3) 0</li> <li>4) <math>a</math></li> </ol>
<p>2 When solving for the value of <math>x</math> in the equation <math>4(x - 1) + 3 = 18</math>, Aaron wrote the following lines on the board.</p> <p style="margin-left: 40px;">[line 1]                    <math>4(x - 1) + 3 = 18</math>          [line 2]                    <math>4(x - 1) = 15</math>          [line 3]                    <math>4x - 1 = 15</math>          [line 4]                    <math>4x = 16</math>          [line 5]                    <math>x = 4</math></p> <p>Which property was used <i>incorrectly</i> when going from line 2 to line 3?</p> <ol style="list-style-type: none"> <li>1) distributive</li> <li>2) commutative</li> <li>3) associative</li> <li>4) multiplicative inverse</li> </ol>	<p>A method for solving <math>5(x - 2) - 2(x - 5) = 9</math> is shown below. Identify the property used to obtain each of the two indicated steps.</p> $5(x - 2) - 2(x - 5) = 9$ <p>(1) <math>5x - 10 - 2x + 10 = 9</math>                    (1) _____</p> <p>(2) <math>5x - 2x - 10 + 10 = 9</math>                    (2) _____</p> $3x + 0 = 9$ $3x = 9$ $x = 3$
<p>3 A teacher asked the class to solve the equation <math>3(x + 2) = 21</math>. Robert wrote <math>3x + 6 = 21</math> as his first step. Which property did he use?</p> <ol style="list-style-type: none"> <li>1) associative property</li> <li>2) commutative property</li> <li>3) distributive property</li> <li>4) zero property of addition</li> </ol>	<p>Which equation illustrates the multiplicative inverse property?</p> <ol style="list-style-type: none"> <li>1) <math>a \cdot 1 = a</math></li> <li>2) <math>a \cdot 0 = 0</math></li> <li>3) <math>a \left( \frac{1}{a} \right) = 1</math></li> <li>4) <math>(-a)(-a) = a^2</math></li> </ol>
<p>4 While solving the equation <math>4(x + 2) = 28</math>, Becca wrote <math>4x + 8 = 28</math>. Which property did she use?</p> <ol style="list-style-type: none"> <li>1) distributive</li> <li>2) associative</li> <li>3) commutative</li> <li>4) identity</li> </ol>	<p>Which expression must be added to <math>3x - 7</math> to equal 0?</p> <ol style="list-style-type: none"> <li>1) 0</li> <li>2) <math>3x + 7</math></li> <li>3) <math>-3x - 7</math></li> <li>4) <math>-3x + 7</math></li> </ol>
<p>What is the multiplicative inverse of <math>\frac{3}{4}</math>?</p> <ol style="list-style-type: none"> <li>1) <math>-1</math></li> <li>2) <math>\frac{4}{3}</math></li> <li>3) <math>-\frac{4}{3}</math></li> <li>4) <math>-\frac{3}{4}</math></li> </ol>	<p>10 If <math>a \neq 0</math> and the sum of <math>x</math> and <math>\frac{1}{a}</math> is 0, then</p> <ol style="list-style-type: none"> <li>1) <math>x = a</math></li> <li>2) <math>x = -a</math></li> <li>3) <math>x = -\frac{1}{a}</math></li> <li>4) <math>x = 1 - a</math></li> </ol>

Name \_\_\_\_\_ Date \_\_\_\_\_ Class \_\_\_\_\_