

# Algebra Unit 1 Review

Name: \_\_\_\_\_

<p>1. Ramon drives his car 150 miles in 3 hours. What is the unit rate?</p>	<p>2. Solve the Proportion</p> $\frac{3}{k} = \frac{45}{18}$
<p>3. A cyclist travels 45 miles in 4 hours. What is her speed in feet per second?</p>	<p>4. In a test, a hybrid car drove 4952 yards on 1 cup of gasoline. What is this rate in miles per gallon?</p>
<p>5. One day, the exchange rate was 60 U.S. dollars for 50 euro. At this rate, about how many U.S. dollars would be equivalent to 70 euro?</p>	<p>6. Isabel reads 15 books from the library each month for <math>y</math> months in a row. Write an expression that shows how many books Isabel read in <math>y</math> months.</p>
<p>7. Solve for <math>x</math>.</p> $Ax + by = C$	<p>8. Solve for <math>h</math>.</p> $V = \pi r^2 h$
<p>9. Write as an algebraic expression: <b>Five times the difference of the cube of <math>y</math> and the square of <math>x</math></b></p>	<p>10. Write as an algebraic expression: <b>twice the sum of <math>x</math> and <math>y</math> decreased by 23</b></p>
<p>11. Write as an algebraic expression: <b>Add 5 to the product of 4 and <math>n</math>, then divide by 8</b></p>	<p>12. Write as an algebraic expression: <b>Add 8 to <math>n</math> then multiply your answer by 7</b></p>

<p>13. Solve for m. <math>mx + 4y = 3t</math></p>	<p>14. Give a written explanation of the steps used to solve this expression and solve it.</p> <table border="1" data-bbox="867 176 1526 407"> <tbody> <tr> <td><math>-2(2x + 5) - 8</math></td> <td>Original</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	$-2(2x + 5) - 8$	Original																																																
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<p>15. Simplify the expression, then name the terms, coefficients, constants, and factors <math>6(x + 1) + x(5 - 8x) + 10</math></p> <table border="1" data-bbox="94 569 792 869"> <tbody> <tr> <td>Expression</td> <td colspan="4"> </td> </tr> <tr> <td>Terms</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Factors</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Coefficients</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Constants</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Expression					Terms					Factors					Coefficients					Constants					<p>16. Simplify the expression, then name the terms, coefficients, constants, and factors <math>11x^2 + 7x - 4</math></p> <table border="1" data-bbox="818 569 1526 869"> <tbody> <tr> <td>Expression</td> <td colspan="4"> </td> </tr> <tr> <td>Terms</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Factors</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Coefficients</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>Constants</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Expression					Terms					Factors					Coefficients					Constants				
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<p>17. Simplify and show work: <math>(6x^2 - x - 4) + (2x^2 + 5x - 5)</math></p>	<p>18. Simplify and show work: <math>(2x^2 - 3x + 7) - (5x^2 + 3x + 6)</math></p>																																																		
<p>19. Simplify and show work: <math>(x + 4)(x + 11)</math></p>	<p>20. Simplify and show work: <math>(a + 7)^2</math></p>																																																		
<p>21. Simplify the expression <math>17\sqrt{7} - 4\sqrt{7}</math></p>	<p>22. Simplify the expression <math>\sqrt{72} + \sqrt{2}</math></p>																																																		
<p>23. Simplify the expression <math>\sqrt{45}</math></p>	<p>24. Simplify the expression <math>\sqrt{8} \cdot \sqrt{2}</math></p>																																																		

<p>25. Simplify</p> $\frac{\sqrt{45}}{\sqrt{5}}$	<p>26. Simplify</p> $2(\sqrt{5} - \sqrt{3}) + 3(\sqrt{3} - \sqrt{5})$
<p>27. Which expression has a value that is a rational number?</p> <p>A. <math>\sqrt{9} + \sqrt{4}</math></p> <p>B. <math>\sqrt{10} + 16</math></p> <p>C. <math>2(\sqrt{5} + \sqrt{7})</math></p> <p>D. <math>\sqrt{3} + 0</math></p>	<p>28. Rational or Irrational? Detailed reason why.</p> $\sqrt{5}$
<p>29. Rational or Irrational? Detailed reason why.</p> $5.\overline{75}$	<p>30. Rational or Irrational? Detailed reason why.</p> $(5 + \sqrt{5})(5 - \sqrt{5})$
<p>31. Complete the conjecture that describes the given expression.</p> $5 + \sqrt{7}$ <p>The sum of a (rational, irrational) number and a (rational, irrational) number is (rational, irrational) .</p>	<p>32. Complete the conjecture that describes the given expression.</p> $\sqrt{5}(\sqrt{15})$ <p>The product of a (rational, irrational) number and a (rational, irrational) number is (rational, irrational).</p>
<p>33. Agree or disagree and why?</p> <p>Hank says, “And because it goes on forever, that <i>proves</i> <math>0.\overline{57}</math> has <i>got</i> to be irrational.”</p>	<p>34. Agree or disagree and why?</p> <p>Arlo says, “<math>0.\overline{57}</math> is an irrational number.”</p>