

Unit 1 Review: Algebraic Expressions

What you need to know & be able to do	Things to remember	Examples	
1. Identifying Parts of Algebraic Expressions	<ul style="list-style-type: none"> Identify Parts of an expression Variable Constant Term Coefficient Factors 	<p>a. Identify the:</p> $32x^2 - 8x + 4y - 9$ <p>Variables: x, y</p> <p>Constants: -9</p> <p>Coefficients: $32, -8, 4$</p>	<p>b. Identify the:</p> $24x^2 - x - 7$ <p>Terms: $24x^2, -x, -7$</p> <p>Coefficients: $24, -1$</p> <p>Constants: -7</p>
2. Evaluating Expressions	<ul style="list-style-type: none"> Replace the variable with the value stated. Use parenthesis each time you substitute a value in for the variable! 	<p>a. Evaluate $-5x - 8y$ when $x = -3$ and $y = 7$</p> $-5(-3) - 8(7)$ $15 - 56$ $\boxed{-41}$	<p>b. Evaluate $x^2 - 4x + 7$ when $x = -3$</p> $(-3)^2 - 4(-3) + 7$ $9 + 12 + 7$ $\boxed{28}$
3. Simplify algebraic expressions	<ul style="list-style-type: none"> Distribute first, if possible Then combine like terms 	<p>a. Simplify:</p> $5x^2 - 3x + 4 - 3 + 8x$ $\boxed{5x^2 + 5x + 1}$	<p>b. Simplify:</p> $15x + 5(2x - 4) - 11$ $15x + 10x - 20 - 11$ $\boxed{25x - 31}$
		<p>c. Simplify:</p> $-8x + 4(7x + 2) - 3(5x - 2)$ $-8x + 28x + 8 - 15x + 6$ $\boxed{5x + 14}$	<p>d. Simplify:</p> $\frac{24x - 18}{6} + 4(-2x + 5) - 7x$ $\frac{24x}{6} - \frac{18}{6} - 8x + 20 - 7x$ $4x - 3 - 8x + 20 - 7x$ $\boxed{-11x + 17}$

<p>4. Creating Algebraic Expressions</p>	<ul style="list-style-type: none"> Remember to look for key words and remember our "Cautions" 	<p>a. Create an expression for "Four less than three times a number" ↗</p> $3x - 4$	<p>b. Create an expression for "Four more than the product of 2 and y"</p> $2y + 4$
		<p>c. Create an expression for "Ten more than the quotient of a number and three"</p> $\frac{x}{3} + 10$	<p>d. Create an expression for "One fourth times the difference of a number and three"</p> $\frac{1}{4}(x - 3)$
		<p>e. Leia is selling jewelry at a craft fair. She sells earrings for \$5 and bracelets for \$7 each. Write an expression to represent how much money she makes after selling e earrings and b bracelets.</p> $5e + 7b$	<p>f. A carpenter charges a \$75 flat fee plus \$50 per hour. Write an expression for the total amount spent after h hours.</p> $50h + 75$
		<p>g. Nathan has \$160 to spend on jeans for school. Each pair of jeans costs \$40. Write an expression that represents the amount of money remaining after Nathan has purchased j pairs of jeans.</p> $160 - 40j$	<p>h. Four friends are going to split the profits earned from their handywork business. They had to spend \$200 to buy supplies. Write an expression that represents how much each person will receive.</p> $\frac{p - 200}{4}$
<p>5. Interpreting Algebraic Expressions</p>		<p>a. The cost of renting a canoe is a flat fee of \$25 in addition to \$10 per hour. The expression to model this scenario is $10x + 25$. Explain what the following parts represent:</p> <p>x: <u># of hours</u></p> <p>25: <u>flat fee</u></p> <p>10x: <u>total hourly cost</u></p> <p>$10x + 25$: <u>total cost</u></p>	<p>b. Amy wants to lose 30 pounds at a rate of 2 pounds per week. An expression to model this situation is $30 - 2x$. Explain what the following parts represent:</p> <p>30: <u>starting amount</u></p> <p>x: <u># of weeks</u></p> <p>-2x: <u>total pounds lost after x weeks</u></p> <p>$30 - 2x$: <u>amount of pounds remaining to lose</u></p>