

Name: _____

Date: _____

Unit 2 Test Review: Arithmetic to Algebra

Order of operations

1. $5(-18 \div 3)$ -30	2. $6(2^5 + 1) - 2$ 154	3. $-17 - 4(3 + 2)$ -37
4. $5/(-3+4--4)$ 1	5. $3.2\left(\frac{1}{2} + 4\right) - 1$ 13.4	6. $\frac{4^2 - 8^3}{16}$ -31
7. The highest temperature recorded in August in Marietta was 40°C . The formula for converting Celsius into Fahrenheit is modeled by $F = \frac{9}{5}(40) + 32$. Evaluate the expression to determine the temperature in Fahrenheit. 104		

Evaluation

8. $x + z^2$ where $x = -5$ and $z = 5$ $-5 + (5)^2$ 20	9. $5 - (y - x)$ where $x = 2$ and $y = 3$ $5 - (3 - 2)$ 4	10. $z + y - 2x$ where $x = 2$, $y = 5$, and $z = 1$ $1 + 5 - 2(2)$ 2
11. $\frac{2x-y}{3}$ where $x = 5$ and $y = 1$ $\frac{2(5) - 1}{3}$ 3	12. $2x^3 - y(x + z)$ where $x = 2$, $y = 3$ and $z = -2$ $2(2)^3 - 3(2 + -2)$ 54	13. $m^2 + q$ where $m = -1$ and $q = 2$ 1
14. The formula for the circumference of a circle is $C = 2 * \pi r$. Find the circumference of a circle with a radius of 4 cm. $C = 2 * \pi * 4$ $C = 25.13 \text{ cm}$		

Combining like terms

15. $6 + (4x + 2x) + 3$ $6x + 9$	16. $-9m - 6 - 8m$ $-17m - 6$
17. $x + 5 + 5x + 4$ $6x + 9$	18. $9 - 17y + 5 + 6y$ $-11 + 14$

19. $-9n + n - 5 + 6$ $-8n + 1$	20. $6x - 2 + 3x$ $9x - 2$
21. $-2d - 7 + 2 + 6d$ $4d - 5$	22. $x + x + 1$ $2x + 1$
23. Harry and William are filling water balloons for a water balloon fight. Harry can fill balloons at a rate of $5x + 6$ and William fills balloons at a rate of $12x + 10$ where x represents hours. Write an expression that represents the total number of balloons they can fill together. $5x + 6 + 12x + 10$ $17x + 16$	

Writing Expressions

24. The difference of a number and four $x - 4$	25. Twice a number increased by 16 $2x + 16$
26. 18 less than the product of four and a number $4x - 18$	27. The quotient of five and a number increased by four $\frac{x}{5} + 4$
28. The difference of 13 and a number $x - 13$	29. The sum of five and a number divided by two $\frac{5 + x}{2}$
30. Gary makes six dollars less than twice what Mary makes. Write an expression that represents this. $2x - 6$	

Radical Operations (true/false)

- 31) When adding/ subtracting radicals the number under the radical must be the same
TRUE
- 32) When multiplying radicals the number under the radical must be the same
FALSE
- 33) When multiplying radicals the numbers outside the radical are added together
FALSE multiplied
- 34) When adding/subtracting radicals the numbers on the inside of the radical are added together
FALSE

35) When adding/subtracting radicals the numbers on the outside of the radical are added together **TRUE**

For each of the following determine

- a) if it is an adding/subtracting problem or a multiplication problem (circle one)
 b) simplify the problem

<p>34) $\sqrt{100}$ (Simplify)(Multiply)(Combine)</p> <p> $\begin{array}{c} \wedge \\ 2 \ 50 \\ \wedge \\ 2 \ 25 \\ \wedge \\ 5 \ 5 \end{array}$ </p> <p>PERFECT SQUARE!</p> <p>$\sqrt{2 \cdot 2 \cdot 5 \cdot 5}$</p> <p>$10$</p>	<p>35) $-4\sqrt{120}$ (Simplify)(Multiply)(Combine)</p> <p> $\begin{array}{c} \wedge \\ 5 \ 24 \\ \wedge \\ 2 \ 8 \\ \wedge \\ 2 \ 4 \\ \wedge \\ 2 \ 2 \end{array}$ </p> <p>$-4\sqrt{2 \cdot 2 \cdot 2 \cdot 3 \cdot 5}$</p> <p>$-8\sqrt{30}$</p>
<p>36) $\sqrt{90} + \sqrt{40}$ (Simplify)(Multiply)(Combine)</p> <p> $\begin{array}{c} \wedge \\ 2 \ 45 \\ \wedge \\ 5 \ 9 \\ \wedge \\ 3 \ 3 \end{array} \quad \begin{array}{c} \wedge \\ 2 \ 20 \\ \wedge \\ 2 \ 10 \\ \wedge \\ 2 \ 5 \end{array}$ </p> <p>$\sqrt{2 \cdot 3 \cdot 3} \cdot 3 + \sqrt{2 \cdot 2 \cdot 2} \cdot 2$</p> <p>$3\sqrt{10} + 2\sqrt{10} = 5\sqrt{10}$</p>	<p>37) $5\sqrt{6} + \sqrt{6}$ (Simplify)(Multiply)(Combine)</p> <p>$6\sqrt{6}$</p>
<p>38) $-4\sqrt{6} \cdot \sqrt{6}$ (Simplify)(Multiply)(Combine)</p> <p>PERFECT SQUARE!</p> <p>$-4\sqrt{36}$</p> <p> $\begin{array}{c} \wedge \\ 2 \ 18 \\ \wedge \\ 2 \ 9 \\ \wedge \\ 3 \ 3 \end{array}$ </p> <p>$-4 \cdot 6 = -36$</p> <p>$-4\sqrt{2 \cdot 2 \cdot 3 \cdot 3}$</p> <p>$-4 \cdot 2 \cdot 3 = -36$</p>	<p>39) $4\sqrt{20} \cdot \sqrt{10}$ (Simplify)(Multiply)(Combine)</p> <p>$4\sqrt{200}$</p> <p> $\begin{array}{c} \wedge \\ 2 \ 100 \\ \wedge \\ 2 \ 50 \\ \wedge \\ 2 \ 25 \\ \wedge \\ 5 \ 5 \end{array}$ </p> <p>$4\sqrt{2 \cdot 2 \cdot 2 \cdot 5 \cdot 5}$</p> <p>$4 \cdot 2 \cdot 5 \sqrt{2}$</p> <p>$40\sqrt{2}$</p>
<p>40) $-3\sqrt{98}$ (Simplify)(Multiply)(Combine)</p> <p> $\begin{array}{c} \wedge \\ 2 \ 49 \\ \wedge \\ 7 \ 7 \end{array}$ </p> <p>$-3\sqrt{2 \cdot 7 \cdot 7}$</p> <p>$-21\sqrt{2}$</p>	<p>41) $\sqrt{45} + \sqrt{20}$ (Simplify)(Multiply)(Combine)</p> <p> $\begin{array}{c} \wedge \\ 5 \ 9 \\ \wedge \\ 3 \ 3 \end{array} \quad \begin{array}{c} \wedge \\ 2 \ 10 \\ \wedge \\ 2 \ 5 \end{array}$ </p> <p>$\sqrt{3 \cdot 3 \cdot 5} + \sqrt{2 \cdot 2 \cdot 5}$</p> <p>$3\sqrt{5} + 2\sqrt{5} = 5\sqrt{5}$</p>

