

## Algebra Unit 1 Test Review

Listed below in bolded font is all topics on the test and at least one example for each topic.

### Simplifying Radicals

1.  $\sqrt{50}$   
 $5\sqrt{2}$

2.  $3\sqrt{20}$   
 $6\sqrt{5}$

3.  $2\sqrt{196}$   
 $28$

4.  $\sqrt{108}$   
 $6\sqrt{3}$

5.  $-7\sqrt{54x^{11}}$   
 $-21x^5\sqrt{6x}$

6.  $6\sqrt{75mp^2q^3}$   
 $30pq\sqrt{3mq}$

### Adding and Subtracting Radical

7.  $7\sqrt{5} - 4\sqrt{5}$   
 $3\sqrt{5}$

8.  $7\sqrt{20} + \sqrt{5}$   
 $15\sqrt{5}$

9.  $\sqrt{54} + 2\sqrt{27} - 5\sqrt{18}$

$3\sqrt{6} + 6\sqrt{3} - 15\sqrt{2}$

10.  $-3\sqrt{45} + 2\sqrt{12} + 3\sqrt{6} - 2\sqrt{20}$

$-13\sqrt{3} + 4\sqrt{3} + 3\sqrt{6}$

### Multiplying Radicals

11.  $\sqrt{5} \cdot \sqrt{2}$   
 $\sqrt{10}$

12.  $3\sqrt{10} \cdot 4\sqrt{2} = 12\sqrt{20} = 24\sqrt{5}$

13.  $(3\sqrt{8})^2$

$3\sqrt{8} \cdot 3\sqrt{8}$

$9\sqrt{64} = 9 \cdot 8 = 72$

14.  $\sqrt{5}(3\sqrt{5} - 4\sqrt{3})$

$\sqrt{5} \cdot 3\sqrt{5} - \sqrt{5} \cdot 4\sqrt{3}$

$3 \cdot \sqrt{25} - 4\sqrt{15}$

$3 \cdot 5 - 4\sqrt{15}$

$15 - 4\sqrt{15}$

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**Rational vs. Irrational**

15. Circle all rational number:  $\sqrt{16}$ ,  $\sqrt{12}$ ,  $4.2$ ,  $4.33$ ,  $4.257\dots$ ,  $\pi$ ,  $\frac{1}{3}$ ,  $6$

16. Determine if the statement is always, sometimes, or never true. Challenge... not on test

- a.) The sum of two rational numbers is always rational. Always
- b.) The product of two irrational numbers is always rational. sometimes
- c.) The product of a rational and irrational number is rational. sometimes

**Dimensional Analysis**

17. Convert 2 miles to inches

$$\frac{2 \text{ mile}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} = \boxed{126720 \text{ in}}$$

18. Convert 1,000 feet to miles

$$\frac{1000 \text{ ft}}{1} \cdot \frac{1 \text{ mile}}{5280 \text{ ft}} = \boxed{.189 \text{ mi}}$$

**Appropriate Units**

19. What is best unit to measure the area of the classroom? (multiple choice)

- a. cubic inches
- b. cubic feet
- c. square inches
- d. square feet

**Accuracy vs. Precision**

20. Circle the most precise measurement: A. 3.2 feet or 30 inches B. 16.01 miles or 16.2 miles

21. Circle the most accurate scale if weighing a 5 pound weight:

- Scale 1 = 4.85 pounds
- Scale 2 = 5.1 pounds

**Interpreting Expressions (verbally and algebraically)**

22. Write the algebraic expression: A: nine from a number =  $x - 9$

B: 4 times the sum of a number and 2 =  $4(x + 2)$

23. Write the verbal expression: A:  $6 + x^2$  = six plus a number squared

B:  $5(4 - x)$  = five times the difference of four and a number