**Real Numbers, Distributive Property, Simplifying Radicals and Pythagorean Theorem Test**

**Study Guide**

**2.1: Use Integers and Rational Numbers**

 **- Be able to classify numbers as whole, integer, rational and irrational using all names that apply**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Rational** | **Irrational** | **Integer** | **Whole** |
| −5 |  |  |  |  |
| 0.6 |  |  |  |  |
| 175 |  |  |  |  |
| $$-\frac{26}{4}$$ |  |  |  |  |
| $$0.6\overbar{1}$$ |  |  |  |  |
| $$\sqrt{18}$$ |  |  |  |  |

* **Be able to order numbers from least to greatest**

**Ex: **

* **Be able to find absolute value and opposites of numbers**

**Ex:** Evaluate:  if *x* = –0.75

**2.5: Apply the Distributive Property**

 **- Be able to use the distributive property and identify and combine like terms**

**Ex:  Ex:  Ex: **

* **Be able to simplify division problems using the distributive property**

**Ex:  Ex:  Ex: **

**2.7: Find Square Roots and Compare Real Numbers**

 **- Be able to evaluate square roots, estimate square roots and order square roots**

**Ex: **= 49 **Ex:** Estimate between 2 integers

**11.2: Simplify Radical Expressions**

 **- Be able to write radical expressions in simplest form, including rationalizing the denominator**

**Ex:** $\sqrt{20}·\sqrt{15}$ **Ex:** $\sqrt{\frac{125}{4x³}}$ **Ex:** $\sqrt{27xy}·\sqrt{5y³}$

* **Be able to perform operations with radicals**

**Ex:** $2\sqrt{7}+4\sqrt{7}$ **Ex:** $5\sqrt{3}-2\sqrt{10}+4\sqrt{10}-3\sqrt{3}$

**Ex:** $8\sqrt{3}\left(1-\sqrt{3}\right)$ **Ex:** $\sqrt{4}\left(3\sqrt{15}+\sqrt{5}\right)$ **Ex:** $\sqrt{5}+5\sqrt{3}-2\sqrt{27}$

**11.4: Apply the Pythagorean Theorem**

 **- Be able to use the Pythagorean Theorem to find missing sides of right triangles**

**Ex:** *a* = 30, *b* = 40 **Ex:** A leg: 15; Hypotenuse: 25

* **Be able to use the Pythagorean Theorem to decide if three sides could form a right triangle**

**Ex:** 9, 15, 20 **Ex:** 12, 72, 71

* **Use Pythagorean Theorem to solve real-world problems**

**Ex:** The playing bed of a pool table is in the shape of a rectangle, which measures 154 inches by 20 inches. What is the length of the diagonal of the table? Round your answer to the nearest inch.

**Solve a real-world distributive property problem.**

You are making and selling friendship bracelets and necklaces. You want to sell 50 items in all, *b* of which are friendship bracelets. You are selling bracelets for $2 and necklaces for $3.

1. Write an expression to represent the total amount of money you will make. (You can only use one variable and you are still selling both items!)
2. How much money will you make if you sell 30 bracelets?