

Unit 1: Operations with Rational Numbers Study Guide

1. How do you know if the sum of two rational numbers will be positive or negative?

The sign of the # with the greater absolute value is the sign of the sum.

ex  $-3+2=-1$

2. What is an additive inverse? Give an example.

- a number's opposite - two #'s that add to = 0  
 - the same distance from zero in opposite directions 3 and (-3)

3. Give an example of a real life problem involving negative numbers.

ex. jump from a diving board 3 feet above the water, dive to 6 feet below the surface, come to the surface.

4. What is absolute value?

a #'s distance from zero

5.  $(-9) - (-5) =$

$-9 + 5 = -4$

6.  $(-5)(-2)(6) =$

$(10)(6)$   
 $60$

7.  $(-48) \div (12) =$

$(-4)$

8.  $(-6.7) + (-3.2) + (7.8) =$

$(-9.9) + (7.8)$

$-2.1$

$$\begin{array}{r} 6.7 \\ + 3.2 \\ \hline 9.9 \end{array}$$

$$\begin{array}{r} 9.9 \\ - 7.8 \\ \hline 2.1 \end{array}$$

9.  $(-14) - (7.4)$

$(-14) + (-7.4)$

$-21.4$

$$\begin{array}{r} 14 \\ + 7.4 \\ \hline 21.4 \end{array}$$

10.  $(-5)(6-9)$

$(-5)(-3)$

$15$

11.  $2\frac{1}{3} \div \frac{1}{8} =$

$\frac{7}{3} \div \frac{1}{8} = \frac{7}{3} \times \frac{8}{1} = \frac{56}{3} = 18\frac{2}{3}$

12. Convert to a decimal:  $\frac{4}{15}$

$.2\bar{6}$

13. Convert to a fraction:  $0.\overline{8}$

$$\frac{8}{9}$$

14. If  $x$  represents a negative number is  $x^2$  positive or negative? *positive*

15. If  $x$  represents a negative number, is  $x \cdot x \cdot x \cdot x$  a positive or negative number? *positive*

16. A hot air balloon 450 feet above the ground descends 100 feet before ascending another 275 feet. Describe the location of the hot air balloon.

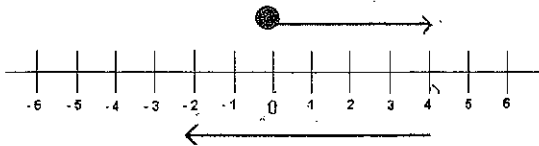
$$-450 - 100 + 275 = 625 \text{ feet}$$

17. Find two integers with a product of -30 and sum of -1. *-6 + 5* ~~prod.~~ ~~sum~~

18. The temperature at 8 am was  $15^\circ\text{F}$ . The temperature dropped 3 degrees per hour for the next 6 hours. What was the temperature at 2 pm?

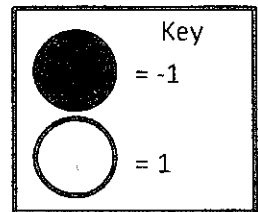
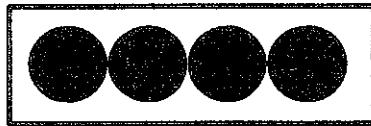
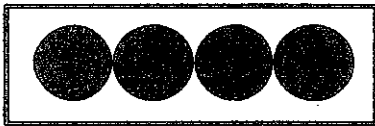
$$15 + (-3 \cdot 6) \\ 15 + (-18) \\ -3^\circ$$

19. Which expression is represented by the model below?



$$4 - 6 \text{ or } 4 + (-6)$$

20. Write an expression representing the model below?



$$-8 \div 2$$

$$-4 \times 2$$

$$-4 + -4$$

21. When the following fractions are converted to decimals, which results in a repeating decimal?

a.  $\frac{2}{5}$

b.  $\frac{5}{8}$

c.  $\frac{2}{3}$

d.  $\frac{3}{8}$

22. You want to buy an I-Pad but you don't have enough money for it. Best Buy lists the I pad 2 for \$399. You have \$75 in your savings account and get another \$100 as a birthday gift from your parents. You babysat the neighbor's kids last night for 5 hours at \$6.50 an hour plus a tip of \$4. You find a job walking dogs for \$25 a week. After 2 weeks, do you have enough to purchase the I-Pad?

$$\begin{array}{r} 75 + 100 = 175 \\ + 36.5 \\ \hline 211.5 \\ + 50 \\ \hline 261.50 \end{array} \quad \text{No}$$

$$\begin{array}{r} 75 \\ + 100 \\ \hline 175 \\ + 36.5 \\ \hline 211.5 \\ + 50 \\ \hline 261.50 \end{array}$$