Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_

Mr. Tallman Math 7-8A

**Do Now**

**Evaluate the following:**

|  |  |  |
| --- | --- | --- |
| 1) $6\left(5\right)=$ | 2) $7∙2=$ | 3) $7∙(9+\left(-2\right))$ |
| 4) $\frac{48}{6} $= | 5) $\frac{5∙10}{2} $= | 6) $\frac{17+3}{20} $= |

**Lesson #6 – Multiplying and Dividing Integers**

Example 1) Lisa owes $2 to 6 friends.

 a) Represent this situation on a number line.



 b) Represent this situation by writing an **addition** equation.

 c) Represent this same situation by writing a **multiplication** equation.

 d) Represent this same situation by writing a division equation.

**Rules for Multiplying and Dividing Integers**

* If the signs are the same:
* If the signs are different:

**Example 1) Find the product or quotient.**

|  |  |  |  |
| --- | --- | --- | --- |
| A) $6∙4=$ | B) $-5(-6)$= | C) $4(-3)$= | D) $-7∙4=$ |
| E) $15÷3=$ | F) $-18÷\left(-6\right)=$ | G) $75÷\left(-25\right)=$ | H) $\frac{-54}{6}=$ |

We can use our multiplication rule to solve exponents.

**Example 2) Solve each exponent.**

|  |  |  |
| --- | --- | --- |
| A) $\left(-2\right)^{3}$ | B) $-5^{2}$ | C) $\left(-2\right)^{3}∙(-6)$ |

**Example 3)** A manatee population decreases by 15 manatees each year for 3 years. Find the change in the manatee population after three years. Show work below.

Example 4) Evaluate each expression below when $a=-18$ and $b=-6$

|  |  |
| --- | --- |
| A) $ a÷b$ | B) $ \frac{a+6}{3}$ |

**Now, You Try! Evaluate the following.**

|  |  |  |
| --- | --- | --- |
| 4) $12∙(-2)$ | 5) $-7∙(-8)$ | 6) $-32÷(-4)$ |
| 7) $-10(-3)(-7)$ | 8) $\frac{-49}{7}$ | 9) $\frac{21}{-3}$ |

10) You lose 5 points for every wrong answer in a trivia game. What represents the change in your points after answering 8 questions wrong? Show work below.

11) Evaluate the following when $x=-32$ and $y=8$

|  |  |
| --- | --- |
| A) $\frac{x}{y}$ | B) $\frac{x+16}{y}$ |

**Challenge Problems**

Evaluate the following. (HINT: Use PEMDAS)

|  |  |  |
| --- | --- | --- |
| 12) $-63÷\left(-7\right)+6$ | 13) $-5-12÷3$ | 14) $-8∙7+33÷(-11)$ |

15) Evaluate $\frac{b^{2}}{a}+4$ when $a=-18$ and $b=-6$

16) You measure the height of the tides using the support beams of a pier. The height of the tide at 2 PM was 59 inches. The height of the tide at 8 PM was 8 inches. What is the mean (average) hourly change in height?