## 2.4: Multiply Real Numbers / 2.6 Divide Real Numbers

Goals: *Add numbers with same signs
*Add numbers with different signs
Rules: $\mathrm{P} \cdot \mathrm{P}=\mathrm{P}$
$P \div P=P$
$\mathrm{P} \cdot \mathrm{N}=\mathrm{N}$
$\mathrm{N} \cdot \mathrm{P}=\mathrm{N}$
$\mathrm{P} \div \mathrm{N}=\mathrm{N} \quad \mathrm{N} \div \mathrm{P}=\mathrm{N}$
$\mathrm{N} \cdot \mathrm{N}=\mathrm{P}$
$\mathrm{N} \div \mathrm{N}=\mathrm{P}$

Ex: $-3(6)$
Ex: 2(-4)(-3)
Ex: $-\frac{1}{2}(-4)(-3)$
Ex: - 2(-7)
-18
24
-6
14

Ex: $-0.5(-4)(-9)$
Ex: $-40 \div(-10)$
Ex: $-16 \div 4$
Ex: $36 \div(-12)$
18
4
-4

## Would the following answers be positive or negative?

Ex: $(-2)(-6)(-8)(-4)$
Ex: $(-2)(6)(-8)(-4)$
Positive
Negative

Is there a shortcut to determining if the final answer will be positive or negative?
If you are multiplying or dividing and have an even number of negative signs the answer will be positive. If you have an odd number of negative signs the answer will be positive.
Ex: $-20 \div \frac{5}{3}$
Ex: $\frac{4}{3}(-3)(7)$
Ex: $-\frac{3}{8} \div\left(-\frac{3}{10}\right)$
$-20 \cdot \frac{3}{5}$
$-28$

$$
\begin{aligned}
& -\frac{3}{8} \cdot-\frac{10}{3} \\
& -\frac{5}{4}
\end{aligned}
$$

Ex: In 1900 the elevation of Mono Lake, CA was about 6416 feet. From 1900 to 1950, the average rate of change in elevation was about -0.12 feet/year. From 1950 to 2000 the average rate of change was about -0.526 feet/year.
a) Find the elevation in the year 1950.

The elevation is changing at a rate of -0.12 feet per year for 50 years.
$6416+(50)(-0.12)$
$6416+-6$
6410 feet
b) Find the elevation in the year 2000.

The elevation is changing at a rate of -0.526 feet per year for 50 years.
$6410+(50)(-0.526)$
$6410+-26.3$
6387.3 feet

Ex: The table gives the daily minimum temperatures (in degrees Fahrenheit) in Barrow, Alaska, for the first five days of February 2004. Find the mean daily minimum temperature.

| Day in Feb. | 1 | 2 | 3 | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Min. Temp. | -21 | -29 | -39 | -39 | -22 |

Mean $=$ average. Find total temperature and divide by 5 for 5 days.
$\frac{-21+(-29)+(-39)+(-39)+(-22)}{5}=\frac{-150}{5}=-30$

