

2 I can use the previous skills learned in Chapter 1 as they apply to Chapter 2 topics.

2.1A I can graph and compare positive and negative numbers.

Ex 1a: Graph the numbers -8, 7, and -3 then order the numbers from least to greatest.



2.1B I can identify and classify whole numbers, integers, rational, and real numbers.

Ex 1b: Classify -2.1 , $\frac{3}{8}$, 0.3 , -2 , $-\frac{5}{4}$

$-2.1, \frac{3}{8}, 0.3, -\frac{5}{4} \rightarrow$ real, rational
 $-2 \rightarrow$ real, rational, integer

2.1C I can find the absolute value of a number.

Ex 1c: Evaluate $|-x| + (-x)$ when $x = -6.25$

$$|-(-6.25)| + (-(-6.25)) = 6.25 + 6.25 = 12.5$$

2.1D I can use the concepts as presented in word problems.

Ex 1d: The gains and losses of a stock for a week are shown in the table. Which day showed the greatest gain? Which day showed the greatest loss?

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Gain/Loss	+0.02	-0.05	-0.12	-0.08	-0.01

greatest gain

greatest loss

2.2A I can use a number line to add numbers.

Ex 2a: Find the sum of $-9 + (-12) = -21$

2.2B I can identify and apply the properties of addition.

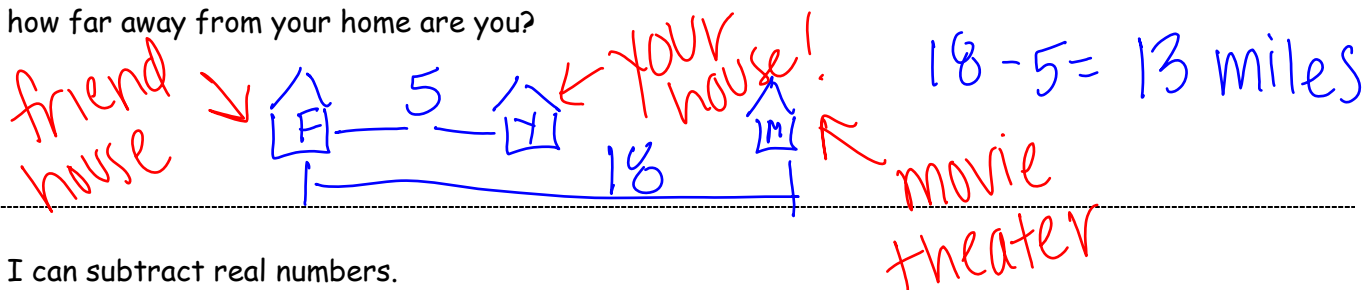
Ex 2b: Find the sum of: $17.6 + (-4.8)$ and $-6\frac{3}{8} + 10\frac{1}{2}$

$$12.8$$

$$-6\frac{3}{8} + 10\frac{4}{8} = 4\frac{1}{8}$$

2.2C I can use the concepts as presented in word problems.

Ex 2c: You are picking up a friend and going to a movie. Your friend lives 5 miles west of your house and the movie theater is 18 miles east of your friend's house. When you are at the movie, how far away from your home are you?



2.3A I can subtract real numbers.

Ex 3a: Subtract $22 - (+28)$ and $\left(-\frac{1}{2}\right) + \left(+\frac{7}{8}\right)$

$$22 + 28 = \boxed{50}$$

$$-\frac{1}{2} + \frac{7}{8} = -\frac{4}{8} + \frac{7}{8} = \boxed{\frac{3}{8}}$$

2.3B I can use the concepts as presented in word problems.

Ex 3b: Alvin, a manned submersible used in deep-sea exploration, has a maximum depth of -14,764 feet. Its first untethered dive was -35 feet. How many feet deeper is Alvin's maximum depth than the depth of its first dive?

$$|-14,764 + 35| = 14,729 \text{ ft. deeper}$$

2.4A I can multiply real numbers.

Ex 4a: Multiply $-15(4.3)$ and $\frac{2}{3}(-15)\left(-\frac{3}{4}\right)$

$$\boxed{-64.5}$$

$$\frac{2}{3}\left(-\frac{15}{1}\right)\left(-\frac{3}{4}\right) = \frac{90}{12} = 7\frac{6}{12} = \boxed{7\frac{1}{2}}$$

2.4B I can identify and apply the properties of multiplication.

Ex 4b: Identify the property illustrated: $(-10 \cdot 13) \cdot 2 = -10 \cdot (13 \cdot 2)$

Associative property

2.4C I can use the concepts as presented in word problems.

Ex 4c: A kind of lava, block lava, is moving away from the base of a volcano at a rate of 1.5 meters per day. If the lava continues to flow at this rate, how far away has the lava flowed from the base of the volcano in 30 days?

$$30(1.5) = 45 \text{ meters}$$

2.4XA I can identify the dimensions and elements of a matrix.

Ex 4xa: Identify the dimensions of $\begin{bmatrix} 2 & 3 \\ -1 & -2 \\ 7 & 2 \end{bmatrix}$ 3×2

2.4XB I can add, subtract and use scalar multiplication with matrices.

Ex 4xb: Simplify the following matrices

i) $\begin{bmatrix} -1 & 7 & -1 \\ 2 & -3 & -5 \end{bmatrix} + \begin{bmatrix} -11 & 1 & 3 \\ -2 & 3 & -9 \end{bmatrix}$ ii) $\begin{bmatrix} -19 & -2 \\ 4 & 3 \\ 7 & 11 \end{bmatrix} - \begin{bmatrix} 9 & -2 \\ 4 & 6 \\ -1 & -10 \end{bmatrix}$ iii) $-4 \begin{bmatrix} 8 & -\frac{1}{3} \\ -\frac{1}{2} & -17 \end{bmatrix}$

i) $\begin{bmatrix} -12 & 8 & 2 \\ 0 & 0 & -14 \end{bmatrix}$ ii) $\begin{bmatrix} -28 & 0 \\ 0 & -3 \\ 8 & 21 \end{bmatrix}$ iii) $\begin{bmatrix} -32 & \frac{4}{3} \\ 2 & 68 \end{bmatrix}$

2.5A I can use the distributive property to write an equivalent expression.

Ex 5a: Simplify $-x(5x - 2)$ $-5x^2 + 2x$

2.5B I can identify like terms, coefficients and constants.

Ex 5b: Identify the like terms, coefficients and constant terms of $3xy + 5 - 2xy + 10$

Like terms: $3xy, -2xy$ and $5, 10$
Coefficients: $3, -2$
Constant: $5, 10$

2.5C I can simplify algebraic expressions.

Ex 5c: Simplify $11x - (x + 7)$ $11x - x - 7 = 10x - 7$

2.5D I can use the concepts as presented in word problems.

Ex 5d: A department store is selling its plastic shoe boxes for \$1.50 off the regular price of a shoe box. You buy 4 shoe boxes. Write an equation that gives the total cost t as a function of the regular cost r of a shoe box. Then find the total cost if the boxes regularly cost \$3.59 each.

$t = 4(r - 1.50)$ total cost is
 $t = 4(3.59 - 1.50) = 8.36$ \$ 8.36

2.6A I can divide real numbers.

Ex 6a: Divide $-\frac{1}{9} \div (-8)$

$$-\frac{1}{9} \cdot \frac{1}{-8} = \frac{1}{72}$$

2.6B I can identify and find a multiplicative inverse (reciprocal).

Ex 6b: Find the multiplicative inverse of -8; solve $-32 \div (-4)$

$$-8 \rightarrow -\frac{1}{8} \quad -32 \cdot \frac{-1}{4} = \frac{-32}{4} = -8$$

2.6C I can find the mean of a set of data.

Ex 6c: Find the mean of: -7.5, 3, -6.5 and 13

$$\frac{-7.5 + 3 + -6.5 + 13}{4} = \frac{2}{4} = \frac{1}{2}$$

2.6D I can use the concepts as presented in word problems.

Ex 6d: During a 3-month period, the traffic to a website dropped by 126,000 visitors. Find the average rate of change in the traffic to the website (in visitors per month) over the 3-month period.

$$\frac{126,000}{3} = 42,000$$

2.7A I can find the square root of a number.

Ex 7a: Find the square root of (round to 2 decimal places): $\sqrt{49}, -\sqrt{129}, \sqrt{640}$

$$\sqrt{49} = 7 \quad -\sqrt{129} = -11.36 \quad \sqrt{640} = 25.30$$

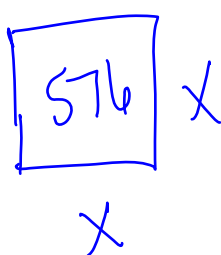
2.7B I can identify a radicand, a perfect square, and an irrational number.

Ex 7b: List an example of a radicand, a perfect square and an irrational number

$$P.S = \sqrt{64} \quad \text{irrational: } \sqrt{7}$$

2.7C I can use the concepts as presented in word problems.

Ex 7d: The US Department of Transportation determines the sizes of traffic control signs that you see along the roadways. The square Alabama state route sign has an area of 576 square inches. Find the length of the sign.



$$\sqrt{x^2} = \sqrt{576} \\ x = \pm 24$$

length of
the sign = 24 in.