

Due date: 9/11/19

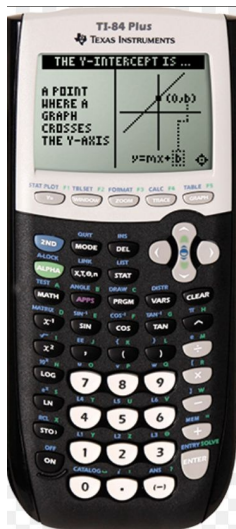
DIRECTIONS/INFORMATION:

- The Summer Enrichment must be completed in its entirety over the summer.
- This assignment will count as a test grade for the first marking period. Late submissions will reduce the grade earned.
- This packet contains math skills required for Pre-Algebra.
- The packet is divided into eight, one-week sections that will allow you to develop a schedule for completing the packet. Follow the directions given in each section of the packet carefully.

Thank you in advance for completing this packet by 9/11/19.

Suggested supplies for this course:

- 1" binder (3-ring)
- Loose-leaf Paper
- Pencils
- Calculator: **TI-84 Plus** is recommended



WEEK 1: Algebraic Expressions

Web Resources:

Exponents:

- <https://www.youtube.com/watch?v=ZJDb7E6aCrA>
- <https://www.khanacademy.org/math/in-seventh-grade-math/exponents-powers/in-exponents/v/introduction-to-exponents>

Parts of Algebraic Expressions:

- <https://www.khanacademy.org/math/in-seventh-grade-math/algebraic-expressions/terms-expression/v/expression-terms-factors-and-coefficients>
- <https://www.youtube.com/watch?v=ffLLmV4mZwU>

Evaluating Algebraic Expressions:

- <https://www.youtube.com/watch?v=kS4H-DOIhAE>
- <https://www.youtube.com/watch?v=NybHckSEQBI>

Simplifying Algebraic Expressions:

- <https://www.youtube.com/watch?v=DKC74YKJpNY>
- https://www.youtube.com/watch?v=3NHswiv_pSE

Equivalent Expressions:

- <https://www.youtube.com/watch?v=rHNY01R2VSQ>
- <https://www.youtube.com/watch?v=UqY0DDjxLGY>

Complete the following problems showing all steps (when necessary) in an organized way.

Simplify:

1. 3^4

2. 4^3

Name the underlined part of the expression.

3. $3\underline{x} + 7$ _____

4. $\underline{9} + 2y$ _____

5. $\underline{5}h + 2y + 8$ _____

6. $7p + \underline{3}b + 10$ _____

Evaluate each expression given the variable.

7. $3x + 7$, when $x = 2$

8. $9 - 2y$, when $y = 4$

Simplify the following expressions.

9. $6h + 7 - 2h$

10. $2(4x + 9) - 10$

11. Which of the following expressions are equivalent to $10x + 8$? Circle all that apply.

a. $5(2x + 8)$

b. $2(5x + 4)$

c. $2x + 7 + 8x + 1$

d. $12x - 2 - 2x + 10$

e. $10(x + 8)$

WEEK 2: Order of Operations, One Step Equations & Inequalities:

Web Resources:

Order of Operations:

- <https://www.khanacademy.org/math/pre-algebra/order-of-operations#order-of-operations-ddp>

Solving 1 Step Equations:

- <https://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-solving-basic-equations/v/one-step-equations>

Solving & Graphing 1 Step Inequalities:

- <https://www.khanacademy.org/math/algebra-basics/core-algebra-linear-equations-inequalities/core-algebra-linear-inequalities/v/one-step-inequalities>

Remember to complete the following problems **without** a calculator. Please show all work.

ORDER OF OPERATIONS:

1. $12 \div 2 \cdot 2 + 15$

2. $(10 + 5) + 24 \div 6$

3. $(54 - 4) \div 5 - 3^2$

4. $(8 - 3)^2 + 20 \div 5$

ONE STEP EQUATIONS: Solve each equation. Show all work.

1. $m - 4 = 12$

2. $26 = 8 + v$

3. $\frac{b}{3} = 9$

4. $7x = 49$

ONE STEP INEQUALITIES: Show all work.

Solve the following inequalities and then graph the solution on the number line provided.

1. $n - 6 < 3$

2. $3 + x \geq 15$



3. $\frac{x}{2} > 4$

4. $4x \leq 20$



WEEK 3: Fraction, Mixed Number, & Decimal Operations

Web Resources:

Adding Fractions:

- <https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/fractions-unlike-denom-pre-alg/v/adding-fractions-with-unlike-denominators>

Subtracting Fractions & Mixed Numbers:

- <https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/mixed-number-add-sub-pre-alg/v/subtracting-mixed-numbers>

Multiplying Mixed Numbers:

- <https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/mixed-number-mult-div-pre-alg/v/multiplying-mixed-numbers>

Dividing Mixed Numbers:

- <https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/mixed-number-mult-div-pre-alg/v/dividing-mixed-numbers>

Adding Decimals:

- <https://www.khanacademy.org/math/arithmetic/decimals/adding-decimals/v/adding-decimals-example-1>

Subtracting Decimals:

- <https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/adding-decimals-pre-alg/v/subtracting-decimals>

Multiplying Decimals:

- <https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/multiplying-decimals-pre-alg/v/multiplying-decimals>

Dividing Decimals:

- <https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/dividing-decimals-pre-alg/v/dividing-decimals>

FRACTION OPERATIONS:

Remember, **do not use a calculator** to complete these problems. Show all work. Final answers should be reduced and in mixed number form, if necessary.

1. $\frac{7}{12} + \frac{3}{4} =$

2. $1\frac{5}{6} - \frac{3}{8} =$

3. $2\frac{3}{7} \cdot \frac{1}{3} =$

4. $\frac{7}{10} \div \frac{4}{5} =$

DECIMAL OPERATIONS: Remember, **do not use a calculator** to complete these problems. Show all work

1. $3.625 + 9.4 =$

2. $15.68 - 7.34 =$

3. $0.78 \cdot 1.5 =$

4. $6.42 \div 0.03 =$

WEEK 4: Ratios & Unit Rates

Web Resources:

Ratios:

- <https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-ratios-intro/v/ratios-intro>

Unit Rate/Price:

- <https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-rates/v/finding-unit-rates>
- <https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-rates/v/finding-unit-prices>

1. Write the ratio of 6 girls to 8 boys in three different ways. Answers should be in reduced form.

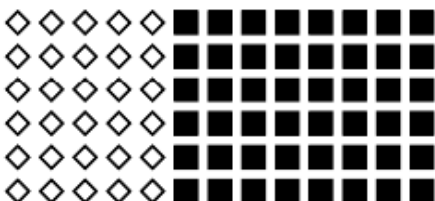
| Words | Ratio | Fraction |
|-------|-------|----------|
| | | |

2.



What is the ratio of
♥ to ★ ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of
★ to (♥ + ★) ? = ____ : ____ = ____ : ____



What is the ratio of
◇ to ■ ? = ____ : ____ = ____ : ____ Simplified

What is the ratio of
■ to (◇ + ■) ? = ____ : ____ = ____ : ____

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3.

Which two types of cars have equivalent ratios of miles traveled to hours of time during the trip? _____

| Cars | Miles Traveled | Hours of Time |
|-----------|----------------|---------------|
| Toyota | 28 | 2 |
| Lexus | 48 | 4 |
| Chevrolet | 42 | 3 |
| Honda | 46 | 3 |

Which two baseball games have equivalent ratios of walks to the number of runs scored? _____

| Games | Walks | Number of Runs Scored |
|---------|-------|-----------------------|
| Cubs | 3 | 32 |
| Yankees | 4 | 40 |
| Marlins | 3 | 33 |
| Red Sox | 2 | 22 |

4. Tom and Paul are building a brick wall. Tom lays 420 bricks in 6 hours. Paul lays 240 bricks in 3 hours. Whose rate is faster? Show all work.

5. A 12 oz. box of Thanksgiving stuffing is \$1.92, while a 16 oz. box costs \$2.88. Which is the better buy? Show all work.

WEEK 5: Fraction, Decimal, & Percent

Web Resources:

Intro to percent:

- <https://www.youtube.com/watch?v=JeVSmq1Nrpw>
- <http://mathwords.com>
- <https://www.khanacademy.org/math/arithmetic/decimals/percent-tutorial/v/percent-word-problems>

Converting between fraction, decimal, percent:

- <https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/decimals-fractions-pre-alg/v/representing-a-number-as-a-decimal-percent-and-fraction>
- <https://www.khanacademy.org/math/arithmetic/decimals/percent-tutorial/v/representing-a-number-as-a-decimal-percent-and-fraction-2>

Find percent of a number:

- <https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/algebra-foundations-decimal-operations/v/taking-a-percentage-example>

Find the whole, given a part & percent:

- https://www.youtube.com/watch?v=Kyk2j_Ecufc

1) Complete the chart below by converting between fractions, decimals, and percents.

| FRACTION | DECIMAL | PERCENT |
|------------------|---------|---------|
| $\frac{3}{4}$ | | |
| | .23 | |
| | | 18% |
| | | 5% |
| | 0.3 | |
| $\frac{73}{100}$ | | |

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2. Find the values of the following and show all work.

a. 25% of 24 _____

b. 62% of 200 _____

c. 18 out of 97 is what %? _____

d. What percent is 15 out of 60? _____

e. 30% of what number is 6? _____

f. 8% of what number is 24? _____

3. A student answered 22 out of 25 questions correctly on the test. What percent did the student answer correctly?

WEEK SIX: Area, Perimeter, Surface Area & Volume

Web Resources:

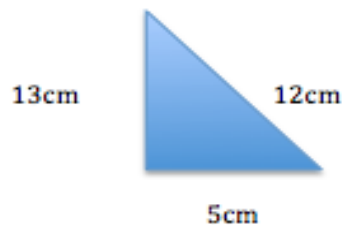
Area & Perimeter

- <https://www.khanacademy.org/math/basic-geo/basic-geo-area-perimeter/basic-geo-area-perimeter-polygon/v/perimeter-and-area-basics>

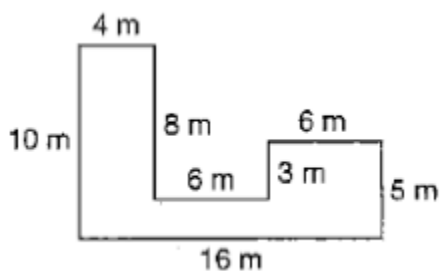
Surface Area

- <https://www.khanacademy.org/math/basic-geo/basic-geo-volume-surface-area>

1. Find the area of the triangle shown below. Show all work.



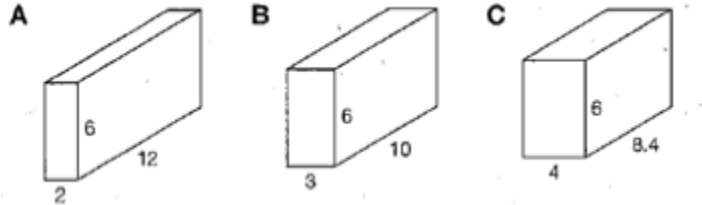
2. Find the perimeter AND area of the figure shown below. Show all work.



Perimeter: _____

Area: _____

3. You are doing a mathematics experiment that involves comparing the surface area of rectangular prisms to their volume. Use the following figures to complete the chart. Show all work.



| Figure | Surface Area | Volume |
|--------|--------------|--------|
| A | _____ | _____ |
| B | _____ | _____ |
| C | _____ | _____ |

Do you see a pattern for the surface area of the rectangular prisms? For their volume?

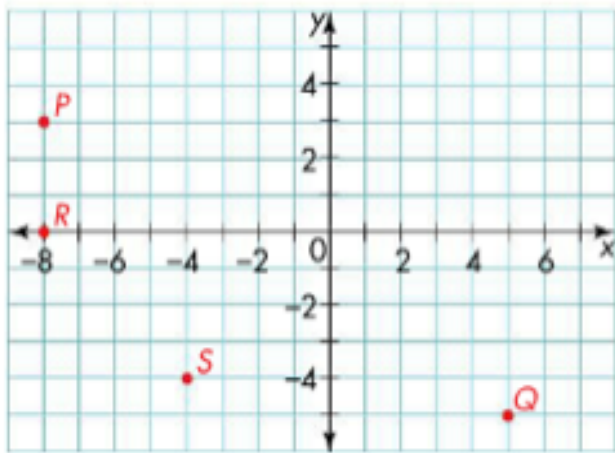
WEEK 7: Coordinate Plane

Web Resources:

Coordinate Plane:

- <https://www.khanacademy.org/math/basic-geo/basic-geo-coordinate-plane/copy-of-cc-6th-coordinate-plane/v/the-coordinate-plane>

1. Label each point on the coordinate plane and provide its quadrant or axis.



- P. (,) Quadrant: _____
Q. (,) Quadrant: _____
S. (,) Quadrant: _____

2. What is the distance between point S and a point with the coordinates (4, - 4)?

3. Find the area of a shape with coordinates A (2, 6), B (2, 0), C (8,0) and D (8, 6).

WEEK 8: Data

Web Resources:

Line Plots:

- http://www.phschool.com/atschool/academy123/english/academy123_content/wl-book-demo/ph-116s.html

Box-and-Whisker Plot (Box Plot):

- <http://www.virtualnerd.com/algebra-2/probability-statistics/central-tendency-dispersion/dispersion/practice-box-whisker>
- <https://www.youtube.com/watch?v=CoVf1jLxgj4>

Mean:

- <http://www.virtualnerd.com/middle-math/probability-statistics/mean-data-set.php>

Median:

- <http://www.virtualnerd.com/middle-math/probability-statistics/median-data-set.php>

Mode:

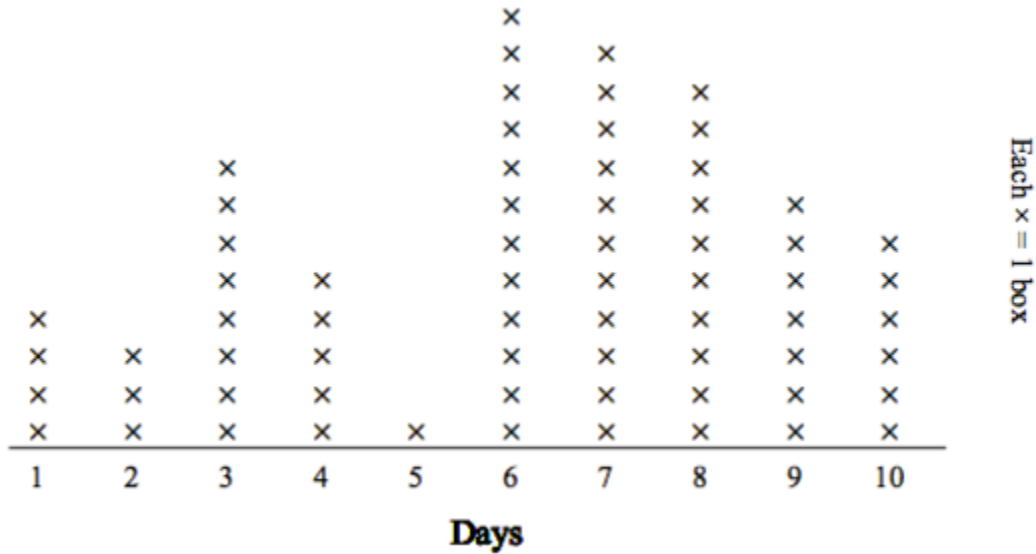
- <http://www.virtualnerd.com/middle-math/probability-statistics/mode-data-set.php>

Range:

- <http://www.virtualnerd.com/middle-math/probability-statistics/range-data-set.php>

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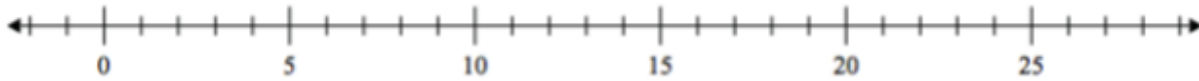
Tom was selling boxes of chocolate candy for his school's fundraiser. He plotted the number of boxes he sold on the line plot below. Use his line plot to answer the questions.



1. On which day did he sell the most boxes? _____
2. On which day did he sell the least number of boxes? _____
3. Did he sell fewer boxes on day 3 or day 9? _____
4. How many days did he sell more than 3 boxes? _____
5. How many boxes did he sell on days 4 and 6 together? _____

6. Make a box-and-whisker plot below with the given set of data, then answer the questions.

9, 13, 18, 16, 14, 19



- a.) What is the range of the data? _____
- b.) What is the IQR (interquartile range) of the data? _____
- c.) What is the median? _____
- d.) What is the mean? _____
- e.) What is the mode? _____

Find the indicated information about the data set below and show all work.

7. 29, 22, 22, 17, 33, 32, 27

Mean: _____

Median: _____

Mode: _____

Range: _____

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8. Jerry was counting the money he received for his birthday. From his aunt he received \$9. From his uncle he received \$9. His best friends gave him \$22, \$23, \$22, and \$22. And his sister gave him \$7. Show all work.

Mean: _____

Mode: _____

Median: _____

Range: _____

Solve the following 12 word problems using any method you choose. Show all work required to arrive at your solutions. **Box or circle your solutions.**

A fencing company charges \$22 per foot to install a wood fence. How much will it cost to install a wood fence around a rectangular pool area that is 20 feet wide and 38 feet long?

A 6 inch-tall plant grew $\frac{3}{4}$ of an inch one week and twice as much the following week. How tall is the plant now?

Jack can read 45 pages of his book in one and a half hours. At that rate, how long will it take him to read the entire 300-page book?

Brian ordered 3 large cheese pizzas and a salad. The salad cost \$4.95. If he spent a total of \$47.60 including the \$5 tip, how much did each pizza cost? (Assume there is no tax).

A cookie recipe calls for $3\frac{1}{4}$ cups of flour. The recipe makes 3 dozen cookies. How much flour is needed to make 144 cookies?

Ella has a box of chocolate candies. She gives $\frac{1}{3}$ of the candies to her sister, 4 to her brother, and she eats the remaining 12 candies. How many chocolate candies were in the box originally?

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20% of the 520 students in Wendover Middle School were involved in school sports. Of those students, 12.5% were on the wrestling team. How many students were on the wrestling team?

A piggy bank contains some dimes and nickels. There are 8 more dimes than nickels in the bank. There is a total of \$1.40. How many of each type of coin are in the bank?

An elevator in a tall building goes up 7 floors, then down 9 floors, down 4 floors, up 8 floors, and down 2 floors. Now it is on floor 14. On what floor did the elevator start?

Jenna danced for 3 hours on Sunday, 2 hours on Monday and Tuesday, 1 hour on Thursday, 1.5 hours on Friday, and 2 hours on Saturday. She did not dance at all on Wednesday. What is the average number of hours she danced each day? Round your answer to the nearest tenth of an hour.

Jackie makes \$15.25/hour babysitting. George makes \$18.50/hour mowing the lawn. If Jackie babysits for 4 hours and George mows lawns for 3 hours, who makes more money? How much more does he/she make?

A box of 8 crayons costs \$0.96. How much does each crayon cost? At that unit price, how much would a box of 30 crayons cost?