Week 1: Decimal and Fraction Operations

Adding & Subtracting Decimals

1. Write the problem vertically, lining up the decimal points.
2. Add additional zeroes at the end, if necessary, to make the numbers have the same number of decimal places.
3. Add/subtract as if the numbers are whole numbers
4. Bring the decimal point straight down

ex: 14.2 - 7.934

$$\begin{array}{r} 14.200 \\ -\ 7.934 \\ \hline 6.266 \end{array}$$

Multiplying Decimals

1. Write the problem vertically with the numbers lined up to the right. The decimal points do NOT need to be lined up.
2. Ignore the decimals and multiply as if the numbers are whole numbers.
3. Count the total number of decimal places in the factors and put a decimal point in the product so that it has that same number of decimal places.

ex: 6.94 x 7.8

$$\begin{array}{r} 6.94 \\ \times\ 7.8 \\ \hline 5552 \\ +\ 48580 \\ \hline 54132 \end{array}$$

2 decimal places + 1 decimal place = 3 decimal places

54.132

Dividing Decimals

1. Write the dividend under the long division symbol and the divisor to the left of it.
2. Move the decimal point in the divisor after the number to turn it into a whole number and then move the decimal in the dividend the same number of places. Then bring it up.
3. Divide as if the numbers are both whole numbers.
4. Annex zeros in the dividend as needed until there is no remainder. If your answer is a repeating decimal, write the answer using bar notation.

ex: 25.3 ÷ 0.3

$$\begin{array}{r} 84.\overline{3} \\ 0.3\overline{)25.30} \\ -24 \\ \hline 13 \\ -12 \\ \hline 10 \\ -\ 9 \\ \hline 1 \end{array}$$

Order of Operations

1. Grouping Symbols (parentheses, brackets, etc.)
2. Exponents
3. Multiplication & Division (left to right)
4. Addition & Subtraction (left to right)

ex: 5 + 4(3 - 1.2)

5 + 4(1.8)

5 + 7.2

12.2

Evaluate each expression.

1. $5.983 + 2.99$	2. $224 - 56.73$	3. $6.12 - 4.923$
4. $24.5 \cdot 3.2$	5. $0.23 \cdot 7$	6. $3.86 \cdot 9.15$
7. $14.8 \div 5$	8. $46.3 \div 1.5$	9. $147 \div 2.25$
10. $24.33 - 2.5 \cdot 7$	11. $3.9 + 4.5^2$	12. $9.25(18.4 - 2 \cdot 1.2)$

Solve each word problem, showing all work.

13. Jeff had \$46.18 in his wallet Monday morning. He gave half of his money to his brother. He then bought two donuts for \$0.75 each and a cup of coffee for \$2.99. How much money did Jeff have left?	14. Five friends split a \$65.20 bill at a restaurant. They also each left \$2.75 for the tip. How much money did each person pay in all?

Adding Fractions & Mixed Numbers

1. Find a common denominator for the two fractions.
2. Add the two numerators and keep the denominator the same.
3. Add the whole numbers.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $3\frac{3}{4} + 2\frac{1}{2}$

$3\frac{3}{4} = 3\frac{3}{4}$

$+ \quad 2\frac{1}{2} = 2\frac{2}{4}$

$5\frac{5}{4} = \boxed{6\frac{1}{4}}$

Subtracting Fractions & Mixed Numbers

1. Find a common denominator for the two fractions.
2. Subtract the two numerators and keep the denominators the same. If the top numerator is smaller than the bottom numerator, borrow from the whole number and rename the top fraction.
3. Subtract the whole numbers.
4. Simplify the answer.

ex: $5\frac{1}{4} - 1\frac{2}{3}$

$5\frac{1}{4} = 5\frac{3}{12} = 4\frac{15}{12}$

$- \quad 1\frac{2}{3} = 1\frac{8}{12} = 1\frac{8}{12}$

$\boxed{3\frac{7}{12}}$

Multiplying Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Cross-simplify if possible.
3. Multiply the numerators and then multiply the denominators
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $2\frac{1}{6} \cdot \frac{4}{7}$

$\frac{13}{3\cancel{6}} \cdot \frac{\cancel{4}^{2}}{7} = \frac{26}{21} = \boxed{1\frac{5}{21}}$

Dividing Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Keep the first fraction the same, change the division to multiplication, and flip the second fraction to its reciprocal.
3. Multiply the fractions.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $7 \div 1\frac{3}{4}$

$\frac{7}{1} \div \frac{7}{4}$

$\downarrow$

$\frac{1\cancel{7}}{1} \cdot \frac{4}{\cancel{7}_{1}} = \frac{4}{1} = \boxed{4}$

Evaluate each expression.

15. $\frac{4}{5} + \frac{3}{4}$	16. $4\frac{2}{7} + 2\frac{9}{14}$	17. $8\frac{11}{12} + 9\frac{5}{18}$
18. $6 - \frac{3}{8}$	19. $8\frac{3}{5} - 2\frac{1}{3}$	20. $4\frac{1}{6} - \frac{8}{9}$
21. $\frac{4}{25} \cdot \frac{15}{16}$	22. $2\frac{3}{4} \cdot 8$	23. $6\frac{5}{8} \cdot 3\frac{1}{2}$
24. $\frac{7}{9} \div \frac{2}{3}$	25. $\frac{4}{5} \div 10$	26. $5\frac{2}{3} \div 2\frac{5}{6}$

Solve each word problem, showing all work.

27. Jaimie ran $3\frac{1}{2}$ miles on Monday. She ran half as far on Tuesday as she did on Monday. How far did Jaimie run in all on Monday and Tuesday?	28. A $5\frac{1}{2}$ quart pot is filled $\frac{2}{3}$ of the way with water. How many more quarts of water can the pot hold?

Week 2: Ratios and Proportions

Ratios

Ratios are comparisons of two quantities.
There are 3 different ways to write ratios:

- Fraction $\left(\frac{A}{B}\right)$
- Colon (A:B)
- Word Form (A to B)

Ratios can be simplified just like fractions.

ex: write the ratio of triangles to circles in 3 ways: ▲▲▲▲○○

$\frac{4}{2} = \boxed{\frac{2}{1},\ 2:1,\ 2 \text{ to } 1}$

Rates & Unit Rates

Rates are ratios that compare quantities measured in different units.
A unit rate is a rate with a denominator of 1.

To convert a rate to a unit rate:

1. Divide the numerator by the denominator
2. Either write your answer as a fraction with a label for the both the numerator and denominator OR as one number labeled with the first unit "per" the second unit

ex: express as a unit rate: 125 miles in 4 hours

$\frac{125 \text{ mi}}{4 \text{ hr}}$ $125 \div 4 = 31.25$

$\boxed{\frac{31.25 \text{ mi}}{1 \text{ hr}} \text{ or } 31.25 \text{ miles per hr}}$

Fractions, Decimals, & Percent

To convert a:

- Decimal to Percent: move the decimal point 2 places to the right — ex: $0.345 = \boxed{34.5\%}$
- Percent to Decimal: move the decimal point 2 places to the left — ex: $7\% = \boxed{0.07}$
- Decimal to Fraction: write the decimal over the place value of the last digit and then simplify — ex: $0.008 = \frac{8}{1000} = \boxed{\frac{1}{125}}$
- Fraction to Decimal: divide the numerator by the denominator — ex: $\frac{1}{5} = 5\overline{)1.0}$ $\boxed{0.2}$
- Percent to Fraction: write the percent over 100 and then simplify — ex: $45\% = \frac{45}{100} = \boxed{\frac{9}{20}}$
- Fraction to Percent: convert the fraction to a decimal and then convert the decimal to a percent — ex: $\frac{3}{10} = 0.3 = \boxed{30\%}$

Percent of a Number

1. Turn the percent to a fraction or decimal.
2. Multiply the fraction/decimal by the number.

ex: Find 18% of 40

$0.18 \cdot 40 = \boxed{7.2}$

Write each ratio in 3 ways.

29. A bank contains 15 pennies and 12 nickels. Write the ratio of nickels to pennies.	30. A bowl contains 6 apples and some bananas. If there are a total of 10 pieces of fruit, find the ratio of apples to bananas.

Convert each rate to a unit rate.

31. $4.25 for 64 fluid ounces	32. 297 miles on 11 gallons of gas	33. 124 feet in 10 seconds

Complete the chart by converting each number to a percent, fraction, and/or decimal.

Fraction	Decimal	Percent
34. $\frac{3}{8}$		
35.	0.45	
36.		72%
37.	0.1	
38. $\frac{3}{200}$		

Find each percent of a number.

39. 30% of 90	40. 15% of 38	41. 50% of 86
42. 75% of 160	43. 24% of 35	44. 2% of 74

Unit: NUMBER RELATIONSHIPS and COMPUTATION

Objective: Identify and determine equivalent forms of proper **fractions** as **decimals**, percents, and ratios - **A.**

Examples: Write $\frac{21}{25}$ as a decimal

Method 1:

Change $\frac{21}{25}$ to a fraction with a denominator of 10, 100, or 1000

EX: $\frac{21}{25} = \frac{?}{100}$

(Use 100, since 25 divides into 100 evenly)

$\frac{21}{25} = \frac{x4}{x4} = \frac{84}{100}$ $\frac{84}{100} = 0.84$ as a decimal

Method 2: Divide 21 by 25

$\frac{21}{25} \rightarrow 25\overline{)21.00}$ 0.84

-200

100

-100

Therefore: $\frac{21}{25} = 0.84$

1.) Write $\frac{19}{20}$ as a decimal. Use method 1

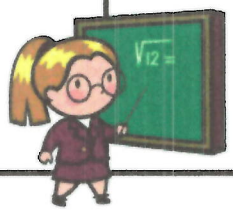
2.) Write $\frac{7}{8}$ as a decimal. Use method 2.

3.) Write $\frac{3}{16}$ as a decimal. Use method 2

4.) Write $\frac{27}{40}$ as a decimal. Use method 2

5.) Write $\frac{3}{4}$ as a decimal. Use method 1

6.) Write $\frac{3}{5}$ as a decimal. Use method 1



Unit: NUMBER RELATIONSHIPS and COMPUTATION

Objective: Identify and determine equivalent forms of proper **fractions** as decimals, **percents**, and ratios - **B**.

Key Concept: Percent (%) is a ratio that compares a number to **100**

Fraction to Percent:

EX: Change $\frac{19}{25}$ to a percent

Since % means out of 100, $\frac{19}{25} = \frac{?}{100}$

$\frac{19}{25} = \frac{x4}{x4} = \frac{76}{100}$

$\frac{76}{100} = 76\%$

Percent to fraction:

EX: Change 75% to a fraction in simplest form

75% means *75 out of 100*

$75\% = \frac{75}{100}$ **Write the percent as a fraction with a denominator of 100**

$\frac{75 \div 25}{100 \div 25} = \frac{3}{4}$ **Simplify**

1.) Change $\frac{17}{20}$ to a percent

2.) Change 84% to a fraction in simplest form

3.) Change $\frac{3}{4}$ to a percent

4.) Change 90% to a fraction in simplest form

5.) Juan answered $\frac{24}{25}$ questions correctly on his quiz. What percent of the questions did he get correct?

6.) 78% of the class completed their homework last night. What fraction of the class completed their homework?



Week 3: Number System and Geometry Part 1

Comparing Integers

Integers are numbers without fractional parts. They can be positive, negative, or zero. The further right a number is on the number line, the greater it is.



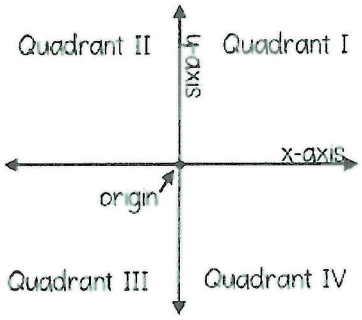
The absolute value of a number is the distance the number is from zero.

ex: compare with <, >, or =

$-7 \bigcirc |-9|$ ← The absolute value of $-9 = 9$

$-7 \boxed{<} 9$

The Coordinate Plane

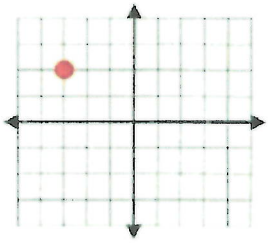


Ordered Pair: (x, y)

To graph a point on the coordinate plane, start at the origin. The first number in the ordered pair (the x-coordinate) tells you how far left (if negative) or right (if positive) to move. The second number (the y-coordinate) tells you how far up (if positive) or down (if negative) to move.

ex: Graph the point (-3, 2) and state the quadrant in which it is located.

Start at the origin, and move LEFT 3 and UP 2

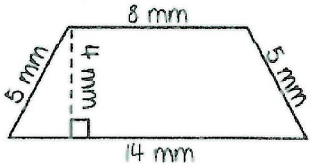


Quadrant II

Perimeter, Area and Volume

- Perimeter of Any Polygon: add all side lengths
- Area of a Rectangle: $A = lw$
- Area of Parallelogram: $A = bh$
- Area of Triangle: $A = \frac{1}{2}bh$
- Area of Trapezoid: $A = \frac{1}{2}h(b_1 + b_2)$
- Volume of Rectangular Prism: $V = lwh$

ex: Find the perimeter & area:



Perimeter: $P = 5 + 8 + 5 + 14 = \boxed{32 \text{ mm}}$

Area: This is a trapezoid, so use the area of a trapezoid formula: $A = \frac{1}{2}h(b_1 + b_2)$

The bases are the sides that are parallel, and the height is perpendicular to the bases.

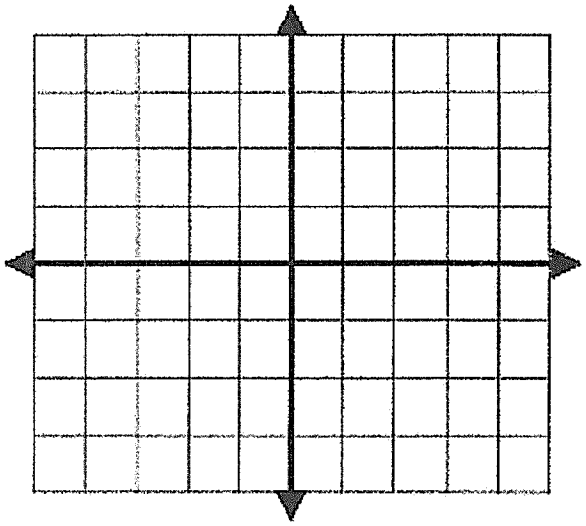
→ $A = \frac{1}{2}(4)(8+14) = \boxed{44 \text{ mm}^2}$

Compare the integers with <, >, or =.

45. $-4 \bigcirc -5$	46. $2 \bigcirc -2$	47. $\lvert -5\rvert \bigcirc \lvert 5\rvert$	48. $-7 \bigcirc 6$	49. $-13 \bigcirc -9$
50. $\lvert -7\rvert \bigcirc -6$	51. $-17 \bigcirc -14$	52. $\lvert -3\rvert \bigcirc \lvert -2\rvert$	53. $0 \bigcirc -6$	54. $\lvert -4\rvert \bigcirc \lvert 6\rvert$

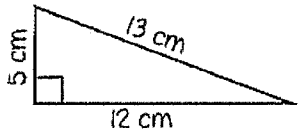
Graph and label each of the ordered pairs in the coordinate plane. Then state the quadrant or axis in/on which the point is located.

55. A(2, 4)	56. B(0, -3)
57. C(1, -1)	58. D(3, 3)
59. E(-4, 1)	60. F(2, 0)
61. G(-3, -2)	62. H(-2, 3)
63. I(0, 2)	64. J(-1, -4)

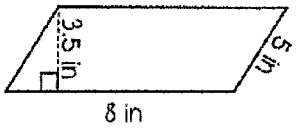


Find the perimeter, area, and/or volume of the given figure.

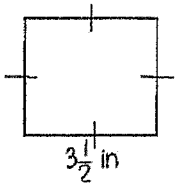
65. Find the perimeter & area:



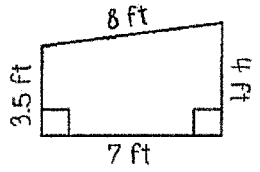
66. Find the perimeter & area:



67. Find the perimeter & area:

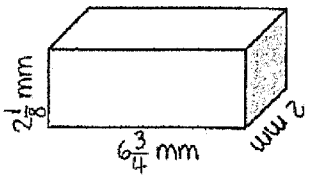


68. Find the perimeter & area:



69. Find the area of a square with a perimeter of 45 cm

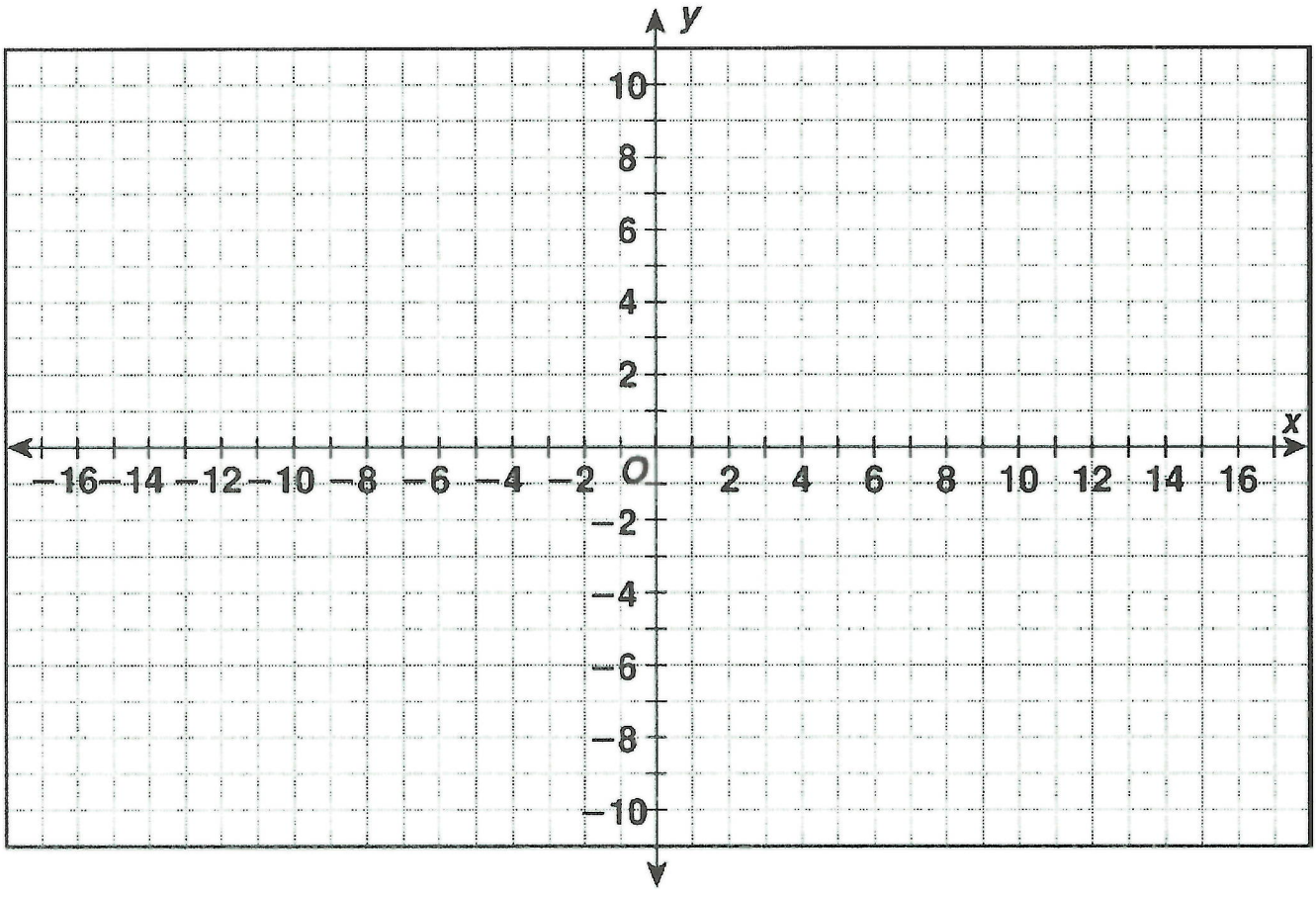
70. Find the volume:



The Coordinate Plane

Graph each point on the grid below. Connect each point to the previous one as you graph it. Then connect the last point to the first point.

1. (0, –10)	2. (–1, –9)	3. (–2.5, –7)	4. (–5, –7)
5. (–6, –5)	6. (–10, –5)	7. (–13, –3)	8. (–15, –1)
9. (–16, 2)	10. (–15, 8)	11. (–15, 10)	12. (–3, 9)
13. (4, 8)	14. (4, 7)	15. (6, 8)	16. (6, 4)
17. (8, 6)	18. (9, 6)	19. (9, 3)	20. (11, 5)
21. (16, 10)	22. (18, 8)	23. (16, 6)	24. (18, 4)
25. (14, 1)	26. (14, –1)	27. (11, –5)	28. (12.5, –8)
29. (13, –10)	30. (11, –9)	31. (9, –6)	32. (2.5, –7)

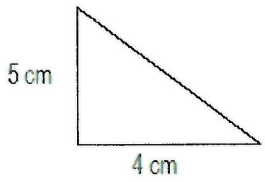


Week 4: Geometry Part 2

Unit: KNOWLEDGE of MEASUREMENT
Objective: Estimate and determine the area of a triangle with whole number dimensions.

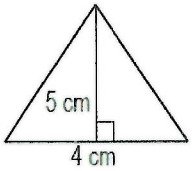
The area (**A**) of a triangle is one half the product of the base (**b**) and the height (**h**).
The formula for finding the area of a triangle is: **A = ½ bh** and is measured in square units.

Examples:



A = ½ bh A = ½ x 4 x 5 A = ½ x 20

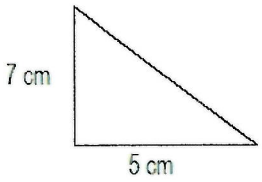
A = 10 cm²



A = ½ bh A = ½ x 4 x 5 A = ½ x 20

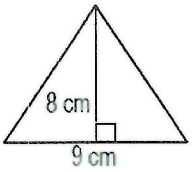
A = 10 cm²

1.) Determine the area of the triangle.



A = _____ cm²

2.) Determine the area of the triangle.



A = _____

3.) Determine the area of an obtuse triangle with a height of 11 cm and a base of 22 cm.

A = _____

4.) Determine the area of an isosceles triangle with a base of 13 cm and a height of 26 cm.

A = _____

5.) World famous pastry chef, Chen Lee, is designing a birthday cake for his son, who is a Geometry teacher. He has 4 layers, all triangles. He wants to put the largest layer (in area) on the bottom and the smallest layer on the top. Determine the area of each layer and order them from largest to smallest (4 = largest, 1 = smallest)

___ Milk Chocolate layer b = 12" h = 6" A =

___ Yellow cake layer b = 7" h = 11" A =

___ Dark Chocolate layer b = 4" h = 17" A =

___ White cake layer b = 9" h = 9" A =

6.) Natasha's dorm room is shaped like a triangle. The college brochure says it has an area of 875 square feet. The room is 35 feet long. Determine the width of the room at its widest point.

Unit: KNOWLEDGE of MEASUREMENT

Objective: Determine the missing measure of a square or rectangle given the area using whole number dimensions.

The **area (A)** of a **rectangle or square** can be found by **multiplying the length (l) by the width (w).** **A = l x w**
The **missing measure** of a square or rectangle can be determined by using **division.**

Examples:



$A = 64\ cm^2$

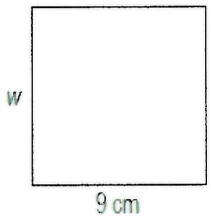
$A = l \times w$

$\frac{64}{16} = \frac{16}{16} \times w$

$4 = w$

The width of the rectangle is 4 cm.

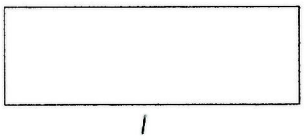
1.) Determine the missing side of the square. Please show your work.



$A = 81\ cm^2$

$w =$

2.) Determine the missing side of the rectangle. Please show your work.



$A = 65\ cm^2$

$l =$

3.) Determine the missing side of a rectangle with an area of 144 cm^2 and a width of 8 cm. Please show your work.

4.) Determine the missing side of a rectangle with an area of 480 cm^2 and a length of 32 cm. Please show your work.

5.) Marcus plans to paint a bright green rectangle on the bottom of his pool. He has enough paint to cover an area of 273 square feet. He wants the width of the rectangle to be 13 feet. Determine what the length of the rectangle should be. Please show your work.

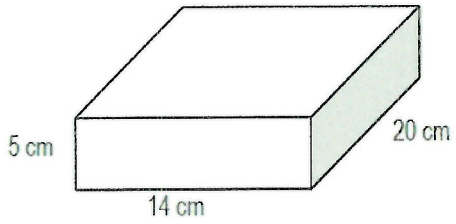
6.) Brianna wants to put stickers, to celebrate her birthday, on top of chocolate bar wrappers. The bar is 48 mm wide and has an area of 4128 mm^2. What must be the length of the sticker to cover the top of the bar?

Unit: KNOWLEDGE of MEASUREMENT

Objective: Estimate and determine the volume of rectangular prisms with whole number dimensions.

The amount of space inside a three-dimensional figure is the **volume** of the figure.
Volume (**V**) is measured in **cubic units**.
The volume of a **rectangular prism** is related to its dimensions. **Volume (V) = length (l) x width (w) x height (h)**

Examples:

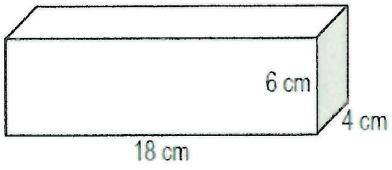


V = l x w x h

V = 20 x 14 x 5

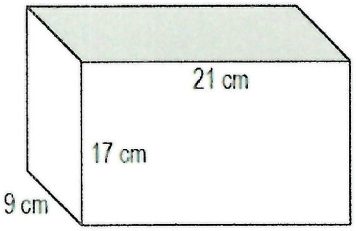
V = 1400 cm^3

1.) Determine the volume of the rectangular prism. Please show your work.



V = _____

2.) Determine the volume of the rectangular prism. Please show your work.



V = _____

3.) Determine the volume of a rectangular prism with a length of 13 cm, a width of 55 cm, and a height of 65 cm. Please show your work.

4.) Determine the volume of a rectangular prism with a height of 35 cm, a length of 89 cm, and a width of 15 cm. Please show you work.

5.) Tyrone has a fish tank that measures 36 in. long, 24 in. high, and 18 in. wide. He wants to fill the fish to a height of 14 inches. What will be the volume of water in the tank? Please show your work.

V = _____

Draw the tank and label the dimensions. Draw the water level. This does not need to be drawn to scale.

6.) Shanika has a lamp that she wants to send to her sister in Baltimore. The lamp is in the shape of a rectangular prism. It measures 14" high, 9" wide, and 3" long. She wants to buy a box so that there is 1" all around the lamp for bubble wrap.

What should be the dimensions of the box?

What is the volume of the box? Please show your work.

Week 5: Expressions and Equations

Evaluating Algebraic Expressions

1. Substitute the given numbers for the variables
2. Evaluate the expression using the order of operations

ex: evaluate $x + 4y$ for $x = 4$ & $y = 6$

$4 + 4(6)$

$4 + 24 = \boxed{28}$

One-Step Addition & Subtraction Equations

- Addition Equations: Subtract the number being added to the variable from both sides of the equation

ex: $4 + x = 18$

$-4 \quad -4$

$\boxed{x = 14}$

- Subtraction Equations: Add the number being subtracted from the variable to both sides of the equation

ex: $20 = a - 5$

$+5 \quad +5$

$25 = a \rightarrow \boxed{a = 25}$

One-Step Multiplication & Division Equations

- Multiplication Equations: Divide both sides of the equation by the number next to the variable

ex: $7b = 28$

$\frac{7b}{7} = \frac{28}{7}$

$\boxed{b = 4}$

- Division Equations: Multiply both sides of the equation by the number under the variable

ex: $\frac{n}{5} = 10 \quad \cdot 5$

$\boxed{n = 50}$

Problem Solving

1. Read the problem. Identify the question that is being asked and the key information in the problem.
2. Plan how you are going to solve the problem and estimate the answer.
3. Solve the problem using the strategy of your choice.
4. Check your answer. Make sure your answer is reasonable and compare it to your estimate. Label your answer with appropriate units.

Evaluate each expression for $a = 5$, $b = 12$, $c = 10$, & $d = 2$.

71. $2b - a$	72. $d(ab - c)$	73. $3 + \frac{b}{d}$
74. $\frac{4a}{b + 4d}$	75. $2a^2 - c$	76. $b - c + d$

Solve each one-step equation.

77. $g + 3 = 17$	78. $r - 6 = 7$	79. $6b = 18$	80. $\frac{h}{9} = 3$
81. $5 = f - 8$	82. $48 = 12b$	83. $a + 24 = 83$	84. $17 + x = 23$
85. $10 = \frac{m}{5}$	86. $86.5 = f - 7.63$	87. $\frac{n}{6} = 11$	88. $\frac{3}{4}h = 12$

Unit: KNOWLEDGE of ALGEBRA, PATTERNS, and FUNCTIONS
Objective: Determine the unknown in a linear equation (addition & subtraction).

- **Addition equations**: Subtract the same number from each side of the equation so that the two sides remain equal.
- **Subtraction equations**: Add the same number to each side of the equation so that the two sides remain equal.

Examples:

$b + 3 = 6$	original equation
$-3 \quad -3$	subtract 3 from each side
$b + 0 = 3$	solution
$b \quad = 3$	simplify

$b - 8 = 4$	original equation
$+8 \quad +8$	add 4 to each side
$b + 0 = 12$	solution
$b \quad = 12$	simplify

1.)

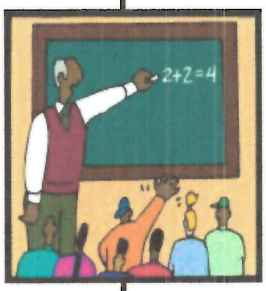
$g + 5 = 12$

2.)

$s - 12 = 29$

3.)

$m + 3.5 = 10.5$



4.)

$k - 5.5 = 8.5$

5.)

$w + 6.25 = 22$

6.)

$g - 3.75 = 49.75$

Unit: KNOWLEDGE of ALGEBRA, PATTERNS, and FUNCTIONS
Objective: Determine the unknown in a linear equation (multiplication & division).

- In a **multiplication equation**, the number by which a variable is multiplied is called the **coefficient**. In the multiplication equation $2x = 8$, the coefficient is 2.
- **Multiplication equations**: Divide both sides by the coefficient so that the two sides remain equal.
- In a **division equation**, the number by which the variable is divided is called the **divisor**. In the division equation $\frac{x}{4}$, 4 is the divisor.
- **Division equations**: Multiply both sides of the equation by the divisor so that the two sides remain equal.

Examples:

$4b = 16$	original equation	$\frac{m}{6} = 11$	original equation
$\frac{4}{4} \quad \frac{4}{4}$	divide both sides by 4	$6 \times \frac{m}{6} = 11 \times 6$	multiply each side by 6
$1b = 4$	solution	$1m = 66$	solution
$b = 4$	simplify	$m = 66$	simplify

1.)

$7x = 63$

2.)

$\frac{k}{9} = 8$

3.)

$5b = 3.55$

4.)

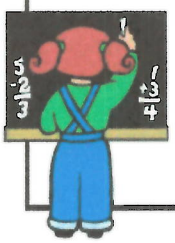
$\frac{n}{7} = 5.55$

5.)

$12m = 84.72$

6.)

$\frac{p}{13} = 2.67$



Week 6: Word Problems

Solve each word problem using the method of your choice.

89. 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?

90. A 6 inch-tall plant grew ¾ of an inch one week and twice as much the following week. How tall is the plant now?

91. 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?

92. 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).

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

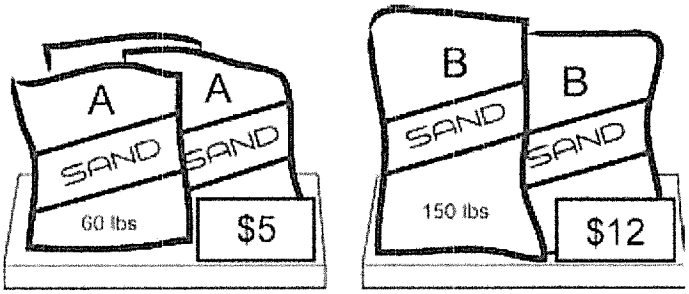
94. Ella has a box of chocolate candies. She gives $\frac{1}{3}$ of the candies to her sister, 4 to her brother, and she eats the remaining 12 candies. How many chocolate candies were in the box originally?

Solve each word problem using the method of your choice.

95. 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?	96. 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?
97. 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?	98. 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.
99. 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?	100. 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?

Week 8: Performance Task #1 **Apply skills and Explain your thinking!**

Alisa hopes to play beach volleyball in the Olympics someday. She has convinced her parents to allow her to set up a beach volleyball court in their backyard. A standard beach volleyball court is approximately 26 feet by 52 feet. She figures that she will need the sand to be one foot deep. She goes to the hardware store to shop for sand and sees the following signs on pallets containing bags of sand.



a. What is the rate that Brand A is selling for? Give the rate and then specify the unit rate.

b. Which brand is offering better value? Explain your answer.

c. Alisa uses her cell phone to search how many pounds of sand is required to fill 1 cubic foot and finds the answer is 100 pounds. Choose one of the brands and compute how much it will cost Alisa to purchase enough sand to fill the court. Identify which brand was chosen as part of your answer. Use the volume formula, $V = l \cdot w \cdot h$, to determine your answer.

Week 9: Performance Task #2 **Apply skills and Explain your thinking!**

Loren and Julie have different part-time jobs after school. They are both paid at a constant rate of dollars per hour. The tables below show Loren and Julie's total income (amount earned) for working a given amount of time.

Loren

Hours	2	4	6	8	10	12	14	16	18
Dollars	18	36	54	72	90	108			162

Julie

Hours	3	6	9	12	15	18	21	24	27
Dollars	36		108	144	180	216		288	324

a. Find the missing values in the two tables above.

b. Who makes more per hour? Justify your answer.

c. Write how much Julie makes as a rate. What is the unit rate?

d. How much money would Julie earn for working 16 hours?

e. What is the ratio between how much Loren makes per hour and how much Julie makes per hour?

f. Julie works $\frac{1}{12}$ hours/dollar. Write a one or two-sentence explanation of what this rate means. Use this rate to find how long it takes for Julie to earn $228.

Student Evaluation/Reflection Form

Complete this form after finishing the summer math challenge

1. How would you rate the difficulty of the problems in general throughout the summer math challenge? Please rate on a scale from 1-10, with 1 being the easiest and 10 being the hardest.

1 (easiest) 2 3 4 5 6 7 8 9 10 (hardest)

2. What types of problems in the challenge were the most difficult and why?

3. What types of problems in the challenge were the easiest and why?

4. When did you complete the challenge? How did you pace yourself when completing the challenge? (Did you do it every day, once a week, completed it in a few days?)

5. List at least 3 goals you have for 7th-grade math.

   1) _____

   2) _____

   3) _____

6. Explain how you plan to achieve those goals.

Thank you for taking the time to complete this evaluation/reflection!
I really appreciate your input!

Answer Key

Evaluate each expression.

1. $5.983 + 2.99$ 8.973	2. $224 - 56.73$ 167.27	3. $6.12 - 4.923$ 1.197
4. $24.5 \cdot 3.2$ 78.4	5. $0.23 \cdot 7$ 1.61	6. $3.86 \cdot 9.15$ 35.319
7. $14.8 \div 5$ 2.96	8. $46.3 \div 1.5$ $30.8\overline{6}$	9. $147 \div 2.25$ $65.\overline{3}$
10. $24.33 - 2.5 \cdot 7$ 6.83	11. $3.9 + 4.5^2$ 24.15	12. $9.25(18.4 - 2 \cdot 1.2)$ 148

Solve each word problem, showing all work.

13. Jeff had $46.18 in his wallet Monday morning. He gave half of his money to his brother. He then bought two donuts for $0.75 each and a cup of coffee for $2.99. How much money did Jeff have left? $18.60	14. Five friends split a $65.20 bill at a restaurant. They also each left $2.75 for the tip. How much money did each person pay in all? $15.79

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Evaluate each expression.

15. $\frac{4}{5} + \frac{3}{4}$ $1\frac{11}{20}$	16. $4\frac{2}{7} + 2\frac{9}{14}$ $6\frac{13}{14}$	17. $8\frac{11}{12} + 9\frac{5}{18}$ $18\frac{7}{36}$
18. $6 - \frac{3}{8}$ $5\frac{5}{8}$	19. $8\frac{3}{5} - 2\frac{1}{3}$ $6\frac{4}{15}$	20. $4\frac{1}{6} - \frac{8}{9}$ $3\frac{5}{18}$
21. $\frac{4}{25} \cdot \frac{15}{16}$ $\frac{3}{20}$	22. $2\frac{3}{4} \cdot 8$ 22	23. $6\frac{5}{8} \cdot 3\frac{1}{2}$ $23\frac{3}{16}$
24. $\frac{7}{9} \div \frac{2}{3}$ $1\frac{1}{6}$	25. $\frac{4}{5} \div 10$ $\frac{2}{25}$	26. $5\frac{2}{3} \div 2\frac{5}{6}$ 2

Solve each word problem, showing all work.

27. Jaimie ran $3\frac{1}{2}$ miles on Monday. She ran half as far on Tuesday as she did on Monday. How far did Jaimie run in all on Monday and Tuesday? $5\frac{1}{4}$ miles	28. A $5\frac{1}{2}$ quart pot is filled $\frac{2}{3}$ of the way with water. How many more quarts of water can the pot hold? $1\frac{5}{6}$ quarts

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Write each ratio in 3 ways.

29. A bank contains 15 pennies and 12 nickels. Write the ratio of nickels to pennies.	30. A bowl contains 6 apples and some bananas. If there are a total of 10 pieces of fruit, find the ratio of apples to bananas.
12 nickles : 15 pennies 12 nickles to 15 pennies $\frac{12 \text{ nickels}}{15 \text{ pennies}}$	6 apples : 4 bananas 6 apples to 4 bananas $\frac{6 \text{ apples}}{4 \text{ bananas}}$

Convert each rate to a unit rate.

31. $4.25 for 64 fluid ounces	32. 297 miles on 11 gallons of gas	33. 124 feet in 10 seconds
$0.07/oz	27 mi/gal	12.4 ft/sec

Complete the chart by converting each number to a percent, fraction, and/or decimal.

	Fraction	Decimal	Percent
34.	$\frac{3}{8}$	0.375	37.5%
35.	$\frac{9}{20}$	0.45	45%
36.	$\frac{18}{25}$	0.72	72%
37.	$\frac{1}{10}$	0.1	10%
38.	$\frac{3}{200}$	0.015	1.5%

Find each percent of a number.

39. 30% of 90	40. 15% of 38	41. 50% of 86
27	5.7	43
42. 75% of 160	43. 24% of 35	44. 2% of 74
120	8.4	1.48

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Unit: NUMBER RELATIONSHIPS and COMPUTATION
Objective: Identify and determine equivalent forms of proper **fractions** as **decimals**, percents, and ratios - **A.**

Examples: Write $\frac{21}{25}$ as a decimal

Method 1:

Change $\frac{21}{25}$ to a fraction with a denominator of 10, 100, or 1000

EX: $\frac{21}{25} = \frac{?}{100}$

(Use 100, since 25 divides into 100 evenly)

$\frac{21}{25} = \frac{x4}{x4} = \frac{84}{100}$ $\frac{84}{100} = 0.84$ as a decimal

Method 2: Divide 21 by 25

$\frac{21}{25} \rightarrow 25\overline{)21.00}$ 0.84

-200

100

-100

Therefore: $\frac{21}{25} = 0.84$

1.) Write $\frac{19}{20}$ as a decimal. Use method 1

0.95

2.) Write $\frac{7}{8}$ as a decimal. Use method 2.

0.875

3.) Write $\frac{3}{16}$ as a decimal. Use method 2

0.1875

4.) Write $\frac{27}{40}$ as a decimal. Use method 2

0.675

5.) Write $\frac{3}{4}$ as a decimal. Use method 1

0.75



6.) Write $\frac{3}{5}$ as a decimal. Use method 1

0.6

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Unit: NUMBER RELATIONSHIPS and COMPUTATION
Objective: Identify and determine equivalent forms of proper **fractions** as decimals, **percents**, and ratios - **B**.

Key Concept: Percent (%) is a ratio that compares a number to **100**

Fraction to Percent:

EX: Change $\frac{19}{25}$ to a percent

Since % means out of 100, $\frac{19}{25} = \frac{?}{100}$

$\frac{19}{25} = \frac{x4}{x4} = \frac{76}{100}$

$\frac{76}{100} = 76\%$

Percent to fraction:

EX: Change 75% to a fraction in simplest form

75% means 75 out of 100

$75\% = \frac{75}{100}$ **Write the percent as a fraction with a denominator of 100**

$\frac{75 \div 25}{100 \div 25} = \frac{3}{4}$ **Simplify**

1.) Change $\frac{17}{20}$ to a percent

85%.

2.) Change 84% to a fraction in simplest form

$\frac{21}{25}$

3.) Change $\frac{3}{4}$ to a percent

75%.

4.) Change 90% to a fraction in simplest form

$\frac{9}{10}$

5.) Juan answered $\frac{24}{25}$ questions correctly on his quiz. What percent of the questions did he get correct?

96%.



6.) 78% of the class completed their homework last night. What fraction of the class completed their homework?

$\frac{39}{50}$

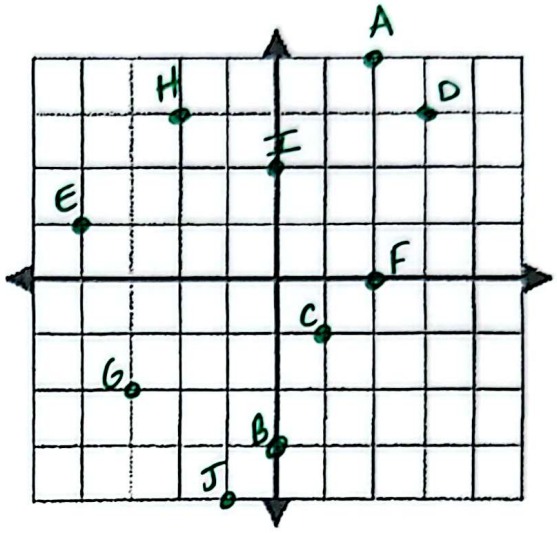
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Compare the integers with <, >, or =.

45. $-4 > -5$	46. $2 > -2$	47. $\lvert-5\rvert = \lvert5\rvert$	48. $-7 < 6$	49. $-13 < -9$
50. $\lvert-7\rvert > -6$	51. $-17 < -14$	52. $\lvert-3\rvert > \lvert-2\rvert$	53. $0 > -6$	54. $\lvert-4\rvert < \lvert6\rvert$

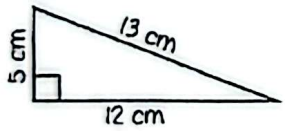
Graph and label each of the ordered pairs in the coordinate plane. Then state the quadrant or axis in/on which the point is located.

55. A(2, 4) I	56. B(0, -3) Between III & IV
57. C(1, -1) IV	58. D(3, 3) I
59. E(-4, 1) II	60. F(2, 0) Between I & IV
61. G(-3, -2) III	62. H(-2, 3) II
63. I(0, 2) Between I & II	64. J(-1, -4) III



Find the perimeter, area, and/or volume of the given figure.

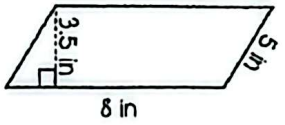
65. Find the perimeter & area:



P = 30 cm

A = 30 cm²

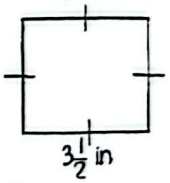
66. Find the perimeter & area:



P = 26 in

A = 28 in²

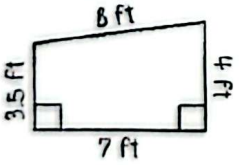
67. Find the perimeter & area:



P = 14 in

A = 12.25 in²

68. Find the perimeter & area:



P = 22.5 ft.

A = 26.25 ft.²

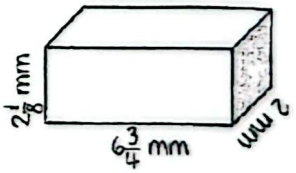
69. Find the area of a square with a perimeter of 45 cm

A = 126.5625 ft²

or

126.6 ft²

70. Find the volume:



V = 28.6875 mm³

or

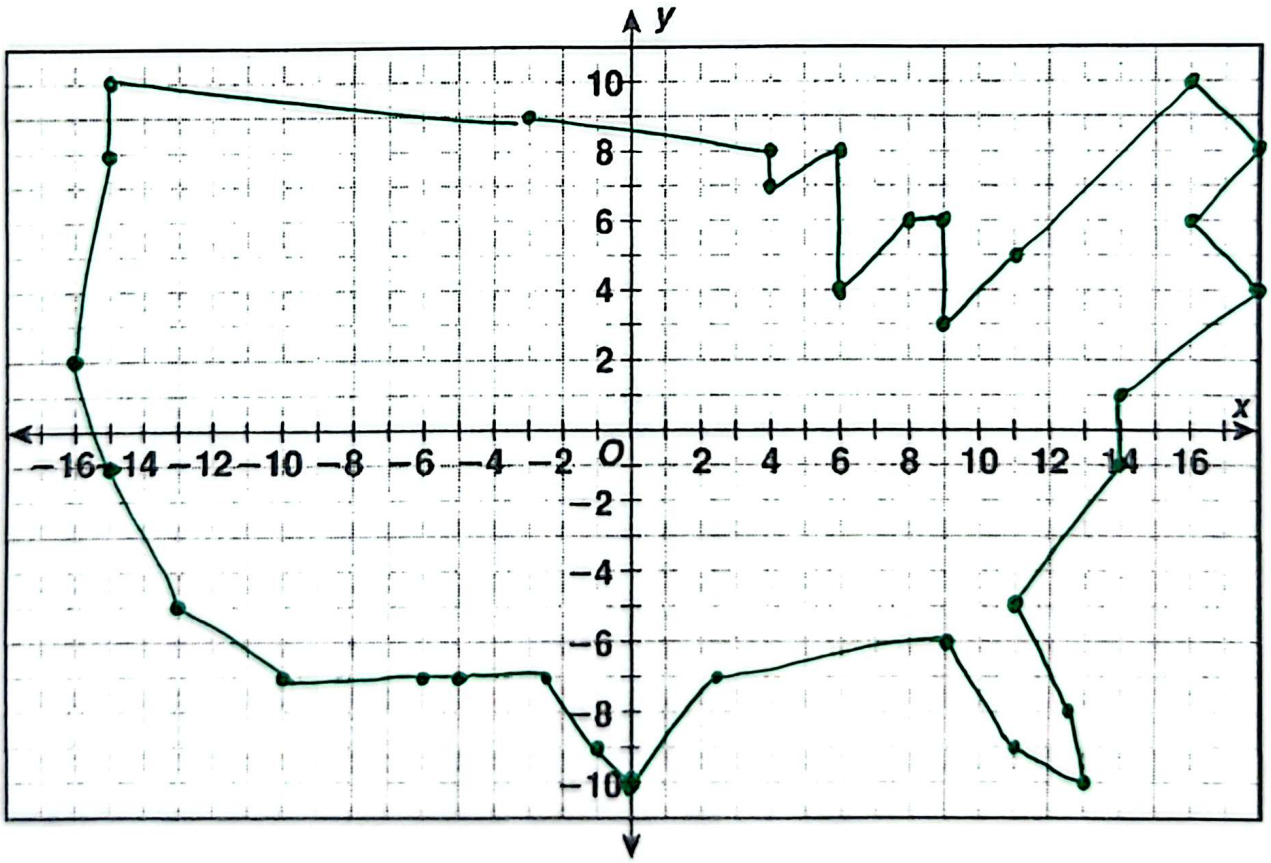
$28\frac{11}{16}$ mm³

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The Coordinate Plane

Graph each point on the grid below. Connect each point to the previous one as you graph it. Then connect the last point to the first point.

1. (0, –10)	2. (–1, –9)	3. (–2.5, –7)	4. (–5, –7)
5. (–6, –5)	6. (–10, –5)	7. (–13, –3)	8. (–15, –1)
9. (–16, 2)	10. (–15, 8)	11. (–15, 10)	12. (–3, 9)
13. (4, 8)	14. (4, 7)	15. (6, 8)	16. (6, 4)
17. (8, 6)	18. (9, 6)	19. (9, 3)	20. (11, 5)
21. (16, 10)	22. (18, 8)	23. (16, 6)	24. (18, 4)
25. (14, 1)	26. (14, –1)	27. (11, –5)	28. (12.5, –8)
29. (13, –10)	30. (11, –9)	31. (9, –6)	32. (2.5, –7)



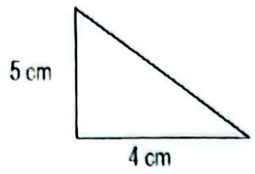
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Week 4: Geometry Part 2

Unit: KNOWLEDGE of MEASUREMENT
Objective: Estimate and determine the area of a triangle with whole number dimensions.

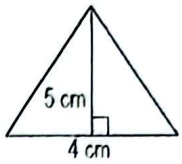
The area (**A**) of a triangle is one half the product of the base (**b**) and the height (**h**).
The formula for finding the area of a triangle is: **A = ½ bh** and is measured in square units.

Examples:



A = ½ bh A = ½ x 4 x 5 A = ½ x 20

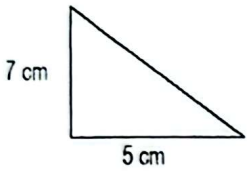
A = 10 cm²



A = ½ bh A = ½ x 4 x 5 A = ½ x 20

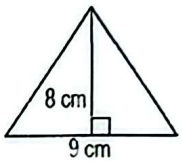
A = 10 cm²

1.) Determine the area of the triangle.



A = 17.5 cm²

2.) Determine the area of the triangle.



A = 36 cm²

3.) Determine the area of an obtuse triangle with a height of 11 cm and a base of 22 cm.

A = 121 cm²

4.) Determine the area of an isosceles triangle with a base of 13 cm and a height of 26 cm.

A = 169 cm²

5.) World famous pastry chef, Chen Lee, is designing a birthday cake for his son, who is a Geometry teacher. He has 4 layers, all triangles. He wants to put the largest layer (in area) on the bottom and the smallest layer on the top. Determine the area of each layer and order them from largest to smallest (4 = largest, 1 = smallest)

2 Milk Chocolate layer b = 12" h = 6" A = 36"

3 Yellow cake layer b = 7" h = 11" A = 38.5"

1 Dark Chocolate layer b = 4" h = 17" A = 34"

4 White cake layer b = 9" h = 9" A = 40.5"

6.) Natasha's dorm room is shaped like a triangle. The college brochure says it has an area of 875 square feet. The room is 35 feet long. Determine the width of the room at its widest point.

50 ft.

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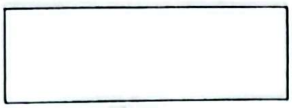
Unit: KNOWLEDGE of MEASUREMENT

Objective: Determine the missing measure of a square or rectangle given the area using whole number dimensions.



The **area (A)** of a **rectangle or square** can be found by **multiplying the length (l) by the width (w).** **A = l x w**
The **missing measure** of a square or rectangle can be determined by using **division**.

Examples:



$A = 64\ cm^2$

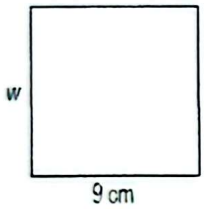
$A = l \times w$

$\frac{64}{16} = \frac{16}{16} \times w$

$4 = w$

The width of the rectangle is 4 cm.

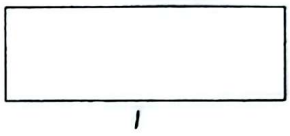
1.) Determine the missing side of the square. Please show your work.



$A = 81\ cm^2$

$w =$ 9cm

2.) Determine the missing side of the rectangle. Please show your work.



$A = 65\ cm^2$

$l =$ 13cm

3.) Determine the missing side of a rectangle with an area of 144 cm^2 and a width of 8 cm. Please show your work.

18cm

4.) Determine the missing side of a rectangle with an area of 480 cm^2 and a length of 32 cm. Please show your work.

15cm

5.) Marcus plans to paint a bright green rectangle on the bottom of his pool. He has enough paint to cover an area of 273 square feet. He wants the width of the rectangle to be 13 feet. Determine what the length of the rectangle should be. Please show your work.

21 ft.

6.) Brianna wants to put stickers, to celebrate her birthday, on top of chocolate bar wrappers. The bar is 48 mm wide and has an area of 4128 mm^2. What must be the length of the sticker to cover the top of the bar?

86mm

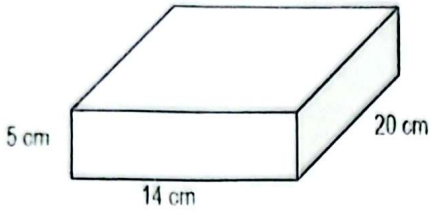
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Unit: KNOWLEDGE of MEASUREMENT

Objective: Estimate and determine the volume of rectangular prisms with whole number dimensions.

The amount of space inside a three-dimensional figure is the **volume** of the figure.
Volume (**V**) is measured in **cubic units**.
The volume of a **rectangular prism** is related to its dimensions. **Volume (V) = length (l) x width (w) x height (h)**

Examples:

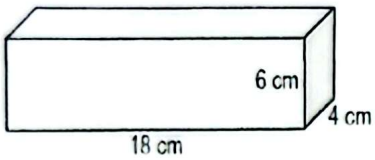


V = l x w x h

V = 20 x 14 x 5

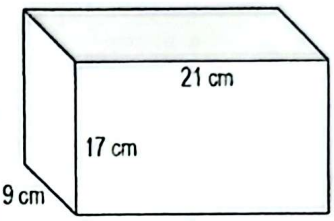
V = 1400 cm^3

1.) Determine the volume of the rectangular prism. Please show your work.



V = 432 cm^3

2.) Determine the volume of the rectangular prism. Please show your work.



V = 3,213 cm^3

3.) Determine the volume of a rectangular prism with a length of 13 cm, a width of 55 cm, and a height of 65 cm. Please show your work.

V = 46,475 cm^3

4.) Determine the volume of a rectangular prism with a height of 35 cm, a length of 89 cm, and a width of 15 cm. Please show you work.

V = 46,725 cm^2

5.) Tyrone has a fish tank that measures 36 in. long, 24 in. high, and 18 in. wide. He wants to fill the fish to a height of 14 inches. What will be the volume of water in the tank? Please show your work.

V = 9,072 in^3

Draw the tank and label the dimensions. Draw the water level. This does not need to be drawn to scale.

6.) Shanika has a lamp that she wants to send to her sister in Baltimore. The lamp is in the shape of a rectangular prism. It measures 14" high, 9" wide, and 3" long. She wants to buy a box so that there is 1" all around the lamp for bubble wrap.

What should be the dimensions of the box?
15"h x 10"w x 4"L
What is the volume of the box? Please show your work.

V = 600 in^3

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Evaluate each expression for $a = 5$, $b = 12$, $c = 10$, & $d = 2$.

71. $2b - a$ 19	72. $d(ab - c)$ 100	73. $3 + \frac{b}{d}$ 9
74. $\frac{4a}{b + 4d}$ 1	75. $2a^2 - c$ 40	76. $b - c + d$ 4

Solve each one-step equation.

77. $g + 3 = 17$ $g = 14$	78. $r - 6 = 7$ $r = 13$	79. $6b = 18$ $b = 3$	80. $\frac{h}{9} = 3$ $h = 27$
81. $5 = f - 8$ $f = 13$	82. $48 = 12b$ $b = 4$	83. $a + 24 = 83$ $a = 59$	84. $17 + x = 23$ $x = 6$
85. $10 = \frac{m}{5}$ $m = 50$	86. $86.5 = f - 7.63$ $F = 94.13$	87. $\frac{n}{6} = 11$ $n = 66$	88. $\frac{3}{4}h = 12$ $h = 16$

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Unit: KNOWLEDGE of ALGEBRA, PATTERNS, and FUNCTIONS
Objective: Determine the unknown in a linear equation (addition & subtraction).

- **Addition equations**: Subtract the same number from each side of the equation so that the two sides remain equal.
- **Subtraction equations**: Add the same number to each side of the equation so that the two sides remain equal.

Examples:

b + 3 = 6	original equation
- 3 - 3	subtract 3 from each side
b + 0 = 3	solution
b = 3	simplify

b – 8 = 4	original equation
+8 +8	add 4 to each side
b + 0 = 12	solution
b = 12	simplify

1.) g + 5 = 12

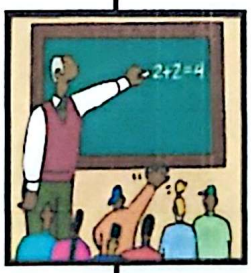
g = 7

2.) s – 12 = 29

S = 41

3.) m + 3.5 = 10.5

m = 7



4.) k – 5.5 = 8.5

K = 14

5.) w + 6.25 = 22

W = 15.75

6.) g – 3.75 = 49.75

g = 53.5

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Unit: KNOWLEDGE of ALGEBRA, PATTERNS, and FUNCTIONS
Objective: Determine the unknown in a linear equation (multiplication & division).

- In a **multiplication equation**, the number by which a variable is multiplied is called the **coefficient**. In the multiplication equation $2x = 8$, the coefficient is 2.
- **Multiplication equations**: Divide both sides by the coefficient so that the two sides remain equal.
- In a **division equation**, the number by which the variable is divided is called the **divisor**. In the division equation $\frac{x}{4}$, 4 is the divisor.
- **Division equations**: Multiply both sides of the equation by the divisor so that the two sides remain equal.

Examples:

$4b = 16$	original equation	$\frac{m}{6} = 11$	original equation
$\frac{4}{4} \quad \frac{}{4}$	divide both sides by 4	$6 \times \frac{m}{6} = 11 \times 6$	multiply each side by 6
$1b = 4$	solution	$1m = 66$	solution
$b = 4$	simplify	$m = 66$	simplify

1.) $7x = 63$

$x = 9$

2.) $\frac{k}{9} = 8$

$K = 72$

3.) $5b = 3.55$

$b = 0.71$

4.) $\frac{n}{7} = 5.55$

$n = 38.85$

5.) $12m = 84.72$



$m = 7.06$

6.) $\frac{p}{13} = 2.67$

$p = 34.71$

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Week 6: Word Problems

Solve each word problem using the method of your choice.

89. 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?

$2,552

90. A 6 inch-tall plant grew ¾ of an inch one week and twice as much the following week. How tall is the plant now?

8.25in or $8\frac{1}{4}$ in

91. 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?

10 hours

92. 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).

$12.55

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

13 cups

94. 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?

24 candies

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Solve each word problem using the method of your choice.

95. 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?

13 students

96. 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?

12 dimes

4 nickels

97. 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?

Floor 14

98. 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.

1.6 hours

99. 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?

Jackie by $5.50

100. 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?

12¢/crayon

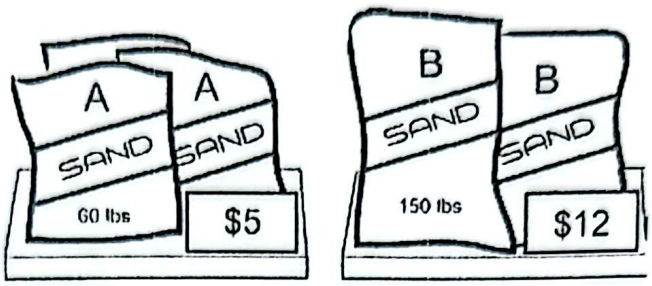
30 crayons = $3.60

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Week 8: Performance Task #1

Apply skills and Explain your thinking!

Alisa hopes to play beach volleyball in the Olympics someday. She has convinced her parents to allow her to set up a beach volleyball court in their backyard. A standard beach volleyball court is approximately 26 feet by 52 feet. She figures that she will need the sand to be one foot deep. She goes to the hardware store to shop for sand and sees the following signs on pallets containing bags of sand.



a. What is the rate that Brand A is selling for? Give the rate and then specify the unit rate.

$\frac{60 \text{ lbs}}{\$5} = \frac{12 \text{ lbs}}{\$1}$

b. Which brand is offering better value? Explain your answer.

A= 12 lbs/$1

B= 12.5 lbs/$1

Brand B - more sand per $1

c. Alisa uses her cell phone to search how many pounds of sand is required to fill 1 cubic foot and finds the answer is 100 pounds. Choose one of the brands and compute how much it will cost Alisa to purchase enough sand to fill the court. Identify which brand was chosen as part of your answer. Use the volume formula, V = l • w • h, to determine your answer.

Need 135,200 pounds of sand

Brand B $\frac{12.5 \text{ lbs}}{\$1} = \frac{135,200 \text{ lbs}}{\$10,816}$

Brand A $\frac{12 \text{ lbs}}{\$1} = \frac{135,200 \text{ lbs}}{\$11,266.67}$

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Week 9: Performance Task #2

Apply skills and Explain your thinking!

Loren and Julie have different part-time jobs after school. They are both paid at a constant rate of dollars per hour. The tables below show Loren and Julie's total income (amount earned) for working a given amount of time.

Loren

Hours	2	4	6	8	10	12	14	16	18
Dollars	18	36	54	72	90	108	126	144	162

Julie

Hours	3	6	9	12	15	18	21	24	27
Dollars	36	72	108	144	180	216	252	288	324

a. Find the missing values in the two tables above.

b. Who makes more per hour? Justify your answer.

Loren = $9/1hr

Julie = $12/1hr

Julie

c. Write how much Julie makes as a rate. What is the unit rate?

$36/3hr = $12/hr

d. How much money would Julie earn for working 16 hours?

$192

e. What is the ratio between how much Loren makes per hour and how much Julie makes per hour?

9:12 or 3:4

f. Julie works $\frac{1}{12}$ hours/dollar. Write a one or two-sentence explanation of what this rate means. Use this rate to find how long it takes for Julie to earn $228.

$\frac{1}{12}$ hr : 5min Every 5min she earns $1 or she makes $1 every 5min.

$\frac{5\text{min}}{\$1} = \frac{1,140\text{min}}{\$228}$ 1,140 min ÷ 60 = 19 hours

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