St. Mark School
Students Entering Grades 1 through 8
Summer Work

i-Ready for Returning Students

Returning St. Mark School students are strongly encouraged to continue on his or her i-Ready Reading and Math Learning Paths. Students should progress on each content area for at least 30 minutes per week. Returning students entering Grades 1 & 2 can log-on to i-Ready using his or her Clever Badge that was provided by the classroom teacher. Returning students entering Grades 3 through 8 can log-on to Clever and i-Ready by using her or her school Google account username and password. ***i-Ready access will be paused between 7/28 and 8/25.***

The website address is: www.clever.com/in/diobpt

Students who are new to St. Mark School will be introduced to Clever and i-Ready in September.

Reading and Math Choice Boards

New and returning students are encouraged to complete some or all of the activities on the Summer Reading and Math Choice Boards. While it's not necessary to finish every activity, students should turn in whatever they have completed to earn credit toward a class reward.

Choice Boards are due by Wednesday, September 17th.

Students Entering Middle School Math Packet

New and returning students entering Grades 6 through 8 will not receive a Math Choice Board. Instead, they are encouraged to complete the Summer Math Packet. It's important that students do their best on this work to help them feel confident and prepared for the challenges of the upcoming school year.

Math Packets are due by Wednesday, September 17th.

Summer Reading Choice Board

For Students Entering Grades 5-8: Below is a grid of reading activities for you to complete over the summer so that you can continue to practice what you learned last year in school. As you finish the activity, write down the title of the book that you have read in the box. If you need more room to complete the activity use another paper and attach to this packet. If you are reading a chapter book, you can write in multiple boxes. Returning students will have access to iReady in June and July to continue working on your learning path. Return the form to your teacher by Wednesday, September 17th to earn a special class reward. There is no minimum number of squares to complete, just complete as much as you can!

Read a chapter in your book and rename the title. Title: Renamed:	Read a book with a Catholic theme. Title:	Read a book from a genre you normally don't read. Title:	Read to a sibling or a friend. Title:	Read an award winning book. Title:
Read an article/book about a historical event. Title:	Read a book by an author you've never read before. Title:	Read on a rainy day. Title:	Read a biography about someone who inspires you. Title:	Read a book with a number in the title. Title:
Borrow a book from the local library. Title:	How does the book you're reading connect to your life?	What are 3 connections you have to the main character in your book?	Read a graphic novel. Title:	Create a comic strip about a chapter you're reading. Include at least 6 boxes.
Listen to an audiobook. Title:	Reread a book you loved. Title:	Read a book recommended by a friend. Title:	Read a cookbook and make a recipe with your family. Title & Recipe:	Read a poem and complete a rhyme scheme pattern. Title:
Read a scripture passage from the Bible. Record the Biblical citation-*specify the book, chapter, and verse number of the passage*:	Find a quote/element of literature in the book and make a poster explaining why you chose it. Title:	Draw a new book cover for a book you read. Attach to paper.	If you could change the ending of the book you read, how would you change it? Title:	Read a book at the beach or the pool. Title:

Math Summer Work Packet

for Students Entering

GRADE 7

This Packet Belongs To:

Table of Contents

A Note from the Math Teacher

Dear Future Math Student & Parents/Guardians,

Enjoy your Summer! The attached packet provides a range of activities that review and expand on the math concepts your child has learned. It is designed to be worked for 15 to 30 minutes a day throughout the summer rather than completed in just a few days at the beginning or end of summer. The goal is to keep skills sharp to be ready to move forward into the next school year.

Work hard a little bit of the time to keep up those math skills…at the same time…have fun a lot of the time to give yourself a break!

Yours in Christ,
Mr. Patrick Fallon, M.Ed.

"MATH IS A JOURNEY, NOT A DESTINATION"

Adding Integers

Adding Integers with the Same Signs:

1. **Add** the absolute values of the numbers (without their signs).
2. **Keep the sign** (either positive or negative) of both numbers.

Adding Integers with Different Signs:

1. **Subtract** the absolute value of the numbers (without their signs) having the largest number on top.
2. Keep the **sign of the largest absolute value.** (larger number determines the sign)

EXAMPLES:

Same Signs:	Different Signs:
7 + 10 = 17	4 + (-9) = -5
-6 + (-5) = -11	-7 + 18 = 11

Find each sum.

1. 21 + 15	2. -11 + 81
3. -1 + 39	4. -8 + (-24)
5. 90 + (-79)	6. 31 + 96
7. 25 + (-90)	8. 15 + 31 + (-20)
9. 8 + 41 + 35	10. 18 + (-80) + (-45)

Subtracting Integers

SAME, CHANGE, CHANGE

When Subtracting ANY Numbers:

1. Change any minus sign to a plus.
2. Change the sign of the number immediately **after** each minus to its opposite (change a positive number to a negative and vice-versa).
3. Follow the rules for adding integers.

EXAMPLES:

Two Numbers:
$-4 - 1 \rightarrow$
$-4 + (\mathbf{-1}) = -5$

More Than Two:
$6 - 1 - (-3) \rightarrow$
$6 + (\mathbf{-1}) + \mathbf{3} = 8$

Find each difference.

1. $39 - 18$	2. $65 - 72$
3. $-85 - (-42)$	4. $-15 - (-86)$
5. $-21 - 24$	6. $-15 - (-57)$
7. $652 - (-57)$	8. $346 - 865$
9. $-8 - (-4) - (-6)$	10. $90 - (-26) - (-48)$

Multiplying/Dividing Integers

When Multiplying ANY Numbers:

1. **Multiply** or **divide** the absolute values of the numbers.
2. For the **sign of the product/quotient**, follow the rules below.
   - Positive x Positive = Positive — Positive ÷ Positive = Positive
   - Negative x Negative = Positive — Negative ÷ Negative = Positive
   - Positive x Negative = Negative — Positive ÷ Negative = Negative
   - Negative x Positive = Negative — Negative ÷ Positive = Negative
   - If there are an even number of negative integers being multiplied/divided, the product will be positive.
   - If there are an odd number of negative integers being multiplied, the product will be negative.

EXAMPLES:

$2(8) = 16$	$-8 \cdot 6 = -48$	$16 \div -8 = -2$
$-10 \times -10 = 100$	$2(-5) = -10$	$\frac{-28}{-4} = 7$

Find each product/quotient.

1. $-8(6)$	2. $-10 \cdot -10$
3. $-24 \div 8$	4. $\frac{-21}{7}$
5. $-14(-4)$	6. $-96 \div -4$
7. $\frac{48}{16}$	8. $-15 \div -15$
9. $5(11)(-3)$	10. $10(-8)(-2)$

Adding/Subtracting Rational Numbers

When Adding/Subtracting ANY fraction:

1. Use GCF to get common denominators.
   - Add/Subtract numerators.
   - Denominators stay the same.
2. Add/subtract the whole numbers if needed.
   When subtracting, the largest absolute value goes on top
3. Reduce to lowest terms.
4. Use the sign of the number with the larger absolute value.

When Adding/Subtracting ANY numbers in decimal form:

1. Line up the place values.
2. Use zeros as place holders.
3. Integer rules apply.

EXAMPLES:

$\frac{-2}{3}+\frac{5}{9}=\frac{-6}{9}+\frac{5}{9}=\frac{-1}{9}$

$-2\frac{3}{5}-5\frac{4}{9}=-2\frac{27}{45}+-5\frac{20}{45}=-7\frac{47}{45}=-8\frac{2}{45}$

$$\begin{array}{r} 43.29 + 3.127 \\ 43.290 \\ +\ 3.127 \\ \hline 46.417 \end{array}$$

Find each sum or difference.

1. $8\frac{5}{12}-2\frac{7}{12}$	2. $\frac{14}{21}+\frac{-2}{7}$
3. $\frac{5}{8}-\frac{2}{3}$	4. $-1\frac{3}{4}+\frac{-3}{16}$
5. $\frac{4}{7}+\frac{-2}{7}$	6. $\frac{14}{25}+\frac{2}{5}$
7. 85.3 - 37.07	8. 27 + 5.19
9. -34.1 + (-17.63)	10. -18.21 - (-7.3)

Multiplying/Dividing Rational Numbers

When Multiplying ANY fractions:

1. Rewrite all numbers (whole numbers, mixed numbers, integers) as a fraction.
2. Reduce by simplifying a numerator with a denominator.
3. Multiply numerators. Multiply denominators.
4. Integer rules apply for the sign.

When Dividing ANY fractions:

1. Rewrite all numbers (whole numbers, mixed numbers, integers) as a fraction.
2. Change the division sign to multiplication and take the reciprocal of the fraction immediately **after** the division sign.
2. Reduce by simplifying a numerator with a denominator.
3. *Follow rules for multiplying fractions.*

When Multiplying ANY numbers:

1. Multiply the numbers.
2. Count how many total numbers **after** the decimal.
3. Put the decimal in so that there are the same amount of numbers after the decimal.
4. Integer rules apply for the sign.

When Dividing ANY numbers:

1. Move the decimal out of the divisor and then that many times in the dividend.
2. Use zeros as place holders.
3. Divide and bring decimal straight up in the quotient.
4. Integer rules apply for the sign.

EXAMPLES:

$\frac{1}{2} \bullet \frac{-2}{7} = \frac{-1}{7}$

$-1\frac{1}{9} \div \frac{2}{3} = \frac{-10}{9} \bullet \frac{3}{2} = \frac{-5}{3}$

$0.63 \div 0.9 = .9\overline{)}.63$

$\begin{array}{r} .7 \\ -\,63 \\ \hline 0 \end{array}$

Find each product or quotient.

1. $-\frac{5}{6}\left(-\frac{2}{5}\right)$	2. $2\frac{5}{6} \bullet 3\frac{1}{3}$
3. $-10 \div \frac{3}{8}$	4. $\frac{-16}{7} \div \left(-\frac{12}{35}\right)$
5. 85(0.07)	6. **−0.104 ÷ (−0.13)**
7. 13.42 ÷ 67.1	8. 2.001(0.05)

Evaluating Expressions

When Evaluating ANY Expression:

1. **Substitute** each variable with its assigned value.
2. **Simplify** the expression using order of operations.

★ Be careful! When replacing a variable with a **negative value**, put **parentheses** around the value in the expression.

EXAMPLES:

Evaluate the expression 4xy, if x = -5 and y = -6.

4**xy** → 4(**-5**)(**-6**) → 180

Evaluate each expression.

1. Evaluate 3x when x = -6.	2. Evaluate -8x when x = -5.
3. Evaluate 0 ÷ y when y = -12.	4. Evaluate $\frac{x}{4}$ when x = -8.
5. Evaluate $\frac{-144}{y}$ when y = -12.	6. Evaluate -2(x + y) when x= -1 and y = 4.
7. Evaluate 3(y + x) when x = 6 and y = 1.	8. Evaluate (a + c) – b when a = 0.4, b = 3.5, and c = 15.61.
9. Evaluate c – d – a when a = 0.4, c =15.61, and d = 0.03.	10. Evaluate x + y when x = $\frac{3}{8}$ and y = $\frac{3}{4}$.

Translating Into Expressions

To Translate Sentences into Algebraic Expressions:

1. Identify the variable by telling what phrase the variable stands for in the sentence. (This could be the phrase "a number" or it could be the unknown information in the sentence).
2. Translate the sentence into related numbers, operations, and variable(s). Usually, the order of the translation will mimic the order of the sentence. (It is helpful to know what words and phrases represent the four main operations, addition, subtraction, multiplication, and division.)

EXAMPLES:

"**Seven less than some number**"
Let n = some number → **n – 7**

"**Thirteen** dollars **plus** the **cost of food**"
Let f = cost of food → **13 + f**

Identify the variable. Then, translate into an expression.

1. A number more than seven	2. The product of some number and six
3. Some number decreased by twelve	4. The quotient of ninety and a number
5. Eight less than some number	6. Twice the number
7. Half of some number	8. Seventeen more than a number
9. Brian is triple his nephew's age	10. Maria ran 4½ miles more than Amy

Two-Step Equations

To Solve Two-Step Equations:

1. **Isolate** the **variable** by using inverse operations
2. **Check** your solution by replacing the variable with the integer.

Examples:

$2x - 10 = 12$	$7x + 9 = -12$	$-3x + 4 = 19$	$\frac{x}{3} + 7 = 10$
$+10 \quad +10$	$-9 \quad -9$	$-4 \quad -4$	$-7 \quad -7$
$2x = 22$	$7x = -21$	$-3x = 15$	$\frac{x}{3} = 3$
$\div 2 \quad \div 2$	$\div 7 \quad \div 7$	$\div -3 \quad \div -3$	$\bullet 3 \quad \bullet 3$
$x = 11$	$x = -3$	$x = -5$	$x = 9$

Solve and check. Show all of your work.

1. $6m + 1 = -23$	2. $5 + 4d = 37$
3. $3 - 7y = -25$	4. $6 - 5b = -14$
5. $\frac{11}{12}e + 25 = 47$	6. $15 - \frac{1}{7}w = -3$
7. $8(x + 3) = 72$	8. $-7(z - 6) = -70$
9. $-0.6(r + 0.2) = 1.8$	10. $\frac{-2}{3}(w - \frac{4}{9}) = -\frac{4}{5}$

Writing Equations

To Write an Equation:

1. **Identify** a variable. Ex: Let x = the number
2. Look for **key words**: Ex decrease (-), increase (+), is (=)

Example:

A **number** increased by 6 is 24.
Let x = the number

$x + 6 = 24$

Five less than a **number** times three is -25
Let x = the number

$3x - 5 = -25$

Identify the variable. Translate into an equation.

1. Twice a number decreased by 7 is 19.	2. Six times a number increased by 8 Is -84.
3. Four minus one-fifth a number is -6.	4. Eight plus two-thirds a number is 12.
5. A company charges $2 for each balloon in an arrangement and a $3 delivery fee. You have $9 to spend. Write an equation for this situation.	6. It costs $7.50 to enter a petting zoo. Each cup of food to feed the animals is $2.50. If you have $12.50, how many cups can you buy?
7. Jamal and two cousins received the same amount of money to go to a movie. Each boy spent $15. Afterward, the boys had $30 altogether. How much money did each boy receive?	8. Mr. Singh had three sheets of stickers. He gave 20 stickers from each sheet to his students and has 12 total stickers left. How many stickers were originally on each sheet?

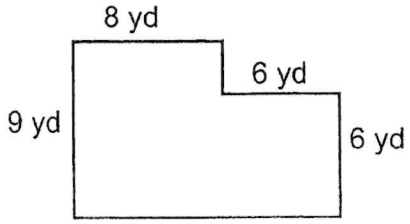
Geometry

Area of square: s^2	Area of trapezoid: $\frac{b_1 + b_2}{2} \bullet h$	perimeter: add all sides
Area of rectangle: $b \bullet h$	Area of circle: $\pi \bullet r^2$	circumference: $2 \bullet \pi \bullet r$ or $\pi \bullet d$
Area of parallelogram: $b \bullet h$	Area of triangle: $\frac{b \bullet h}{2}$	Volume of prism: Area of the base $\bullet$ h or lwh

Solve. Show all work!

1. Find the circumference of a circle whose radius is $2\frac{3}{4}$ feet. Round to the nearest tenth.

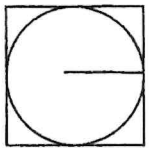
2. Find the perimeter of the composite shape.



3. Find the area of a triangle whose base is 7.5 cm and whose height is 11 cm. Round to the nearest tenth.

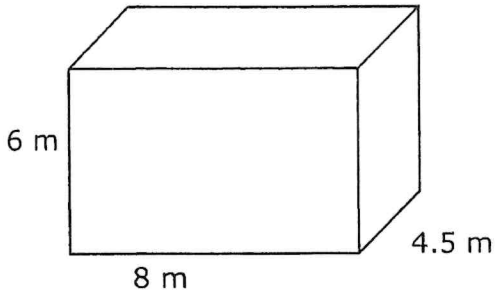
4. Find the area of a square whose side is $5\frac{2}{3}$ m.

5. Find the area of the square given a radius of 5 cm.

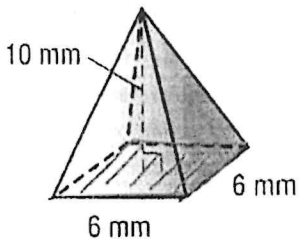


6. Find the volume of a cube whose side is 14 meters.

7. Find the volume of a rectangular prism.



8. Find the volume of the square pyramid.



7th Grade - Summer Math Packet

Unit: KNOWLEDGE of ALGEBRA, PATTERNS, and FUNCTIONS
Objective: Evaluate numeric expressions using order of operations.

- A **numerical expression** is a combination of numbers and operations.
- The **Order of Operations** tells you which operation to perform first so that everyone gets the same final answer.
- The **Order of Operations** is: **Parentheses, Exponents, Multiplication or Division (left to right), and Addition or Subtraction (left to right.)**

Examples:

$48 \div (3 + 3) - 2^2$	original expression
$48 \div 6 - 2^2$	simplify the expression inside the parentheses
$48 \div 6 - 4$	calculate 2^2
$8 - 4$	divide 48 by 6
4	subtract 4 from 8

1.) $(8 + 1) \times 12 - 13$	**2.)** $13 \times 4 - 72 \div 8$
3.) $88 - 16 \times 5 + 2 - 3$	**4.)** $100 \div 5^2 \times 4^3$
5.) $45 \div 9 - 3 + 2 \times 3$	**6.)** $(5^2 + 3^3) \times (81 + 9) \div 10$

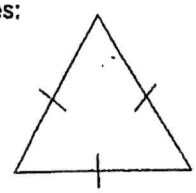
5
12

7th Grade - Summer Math Packet

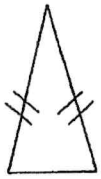
Unit: KNOWLEDGE of GEOMETRY
Objective: Compare or classify triangles as scalene, equilateral, or isosceles.

Triangles are polygons that have **three sides**, three vertices, and three angles.
Triangles can be **classified by the number of congruent sides**, which are sides of equal length.
The same markings on the sides of a triangle show that the sides are **congruent**.

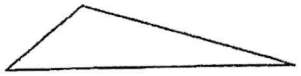
Examples:



Equilateral triangle
Three congruent sides



Isosceles triangle
Two congruent



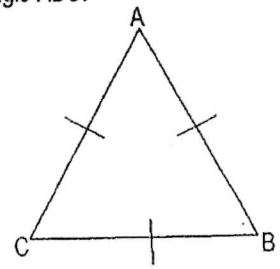
Scalene triangle
No congruent sides

1.) Shown is Equilateral triangle *ABC*.

$\overline{AB}$ = 6 cm.

$\overline{BC}$ = _____

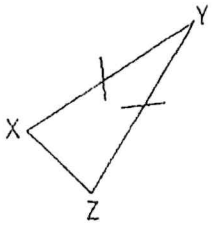
$\overline{CA}$ = _____



2.) Shown is Isosceles triangle XYZ.

$\overline{XY}$ = 5 in.

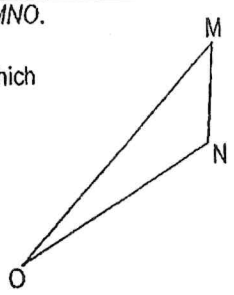
What must be the length of side $\overline{YZ}$?



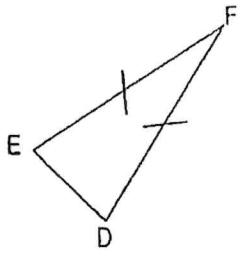
3.) Shown is Scalene triangle *MNO*.

Circle the set of numbers which could be the lengths of the three sides.

3 cm, 5 cm, 6 cm
2 cm, 4 cm, 4 cm
2 cm, 2 cm, 2 cm



4.) Classify triangle *DEF*.



Equilateral

Scalene

Isosceles

5.) Draw an Equilateral triangle. Label the vertices. Name the sides and their lengths.

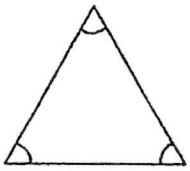
6.) Draw a Scalene triangle. Label the vertices. Name the sides and their lengths.

7th Grade - Summer Math Packet

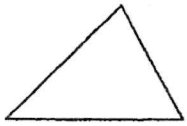
Unit: KNOWLEDGE of GEOMETRY
Objective: Compare or classify triangles as equiangular, obtuse, acute, or right.

Triangles are polygons that have three sides, three vertices, and **three angles.**
Triangles can be **classified according to their angles.**
All triangles have at least 2 acute angles. **Acute, Right, and Obtuse triangles** are **classified according to their third angle.**
The same markings on the angles of a triangle show that the angles are **congruent.**

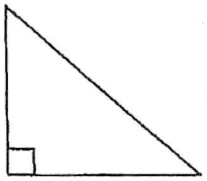
Examples:



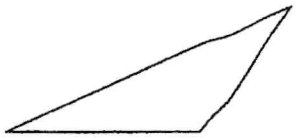
Equiangular triangle
Three congruent angles



Acute triangle
Three acute angles

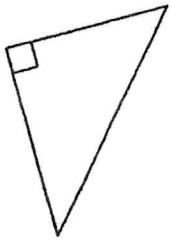


Right triangle
One right angle



Obtuse triangle
One obtuse angle

1.)

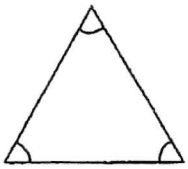


What type of triangle is this?

Circle the correct answer:

Equiangular
Acute
Right
Obtuse

2.)



What type of triangle is this?

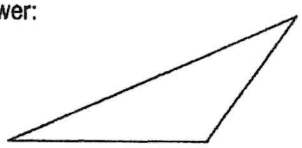
Circle the correct answer:

Equiangular
Acute
Right
Obtuse

3.) What type of triangle is this?

Circle the correct answer:

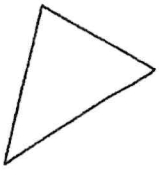
Equiangular
Acute
Right
Obtuse



4.) What type of triangle is this?

Circle the correct answer:

Equiangular
Acute
Right
Obtuse



5.) Melissa needs to draw some triangles as part of her Geometry homework. She confuses acute and obtuse triangles. Which triangle should have one angle that is greater than 90°? Why?

6.) Jack and his dad are building a triangular pen for Jack's new puppy, a Jack Russell Terrier. Jack's dad wants to make the project as easy as possible. Which type of triangle should they use as a model? Why?

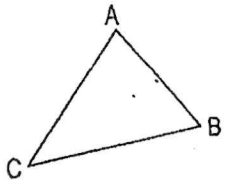
7th Grade - Summer Math Packet

Unit: KNOWLEDGE of GEOMETRY

Objective: Use the concept of the sum of angles in any triangle is 180° to determine the third angle measure of a triangle given two angle measures without a diagram.

Triangles are polygons that have three sides, three vertices, and **three angles**.
The **sum** of the measures of the angles of a triangle is **180°.**

Examples:



Angle A = 65°
Angle B = 60°
Angle C = ?

180 – 65 – 60 = 55 Angle C = 55°

1.) Given triangle XYZ:

Angle X = 90°

Angle Y = 45°

Angle Z = _____°

2.) Given triangle MNO:

Angle M = 15°

Angle N = _____°

Angle O = 135°

3.) Given right triangle ABC:

Angle A is the right angle

Angle B = 55°

Angle C = _____°

4.) Given equiangular triangle FGH:

What is the measure of ...

Angle F? _____°

Angle G? _____°

Angle H? _____°

5.) Given triangle JKL:

Angle J = 120°
Angle K = 50°
Angle L = 20°

Is this possible? Explain why or why not using math.

6.) Teri is making a scrapbook page of her trip to the art exhibit, "Geometry in Your World." She wants to use a large triangle as her background focus. She draws a triangle with the first two angle measures of 100° and 25°.

What is the angle measure of the third angle? _____°

Please show your work:

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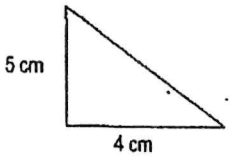
Unit: KNOWLEDGE of MEASUREMENT
Objective: Estimate and determine the area of a triangle with whole number dimensions.

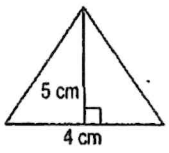
The area (**A**) of a triangle is one half the product of the base (**b**) and the height (**h**).
The formula for finding the area of a triangle is: $A = \frac{1}{2}bh$ and is measured in square units.

Examples:



$A = \frac{1}{2}bh \quad A = \frac{1}{2} \times 4 \times 5 \quad A = \frac{1}{2} \times 20$

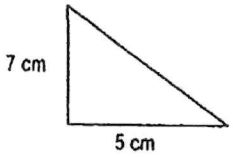
$A = 10\ cm^2$



$A = \frac{1}{2}bh \quad A = \frac{1}{2} \times 4 \times 5 \quad A = \frac{1}{2} \times 20$

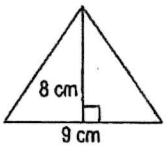
$A = 10\ cm^2$

1.) Determine the area of the triangle.



A = _____ cm^2

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.

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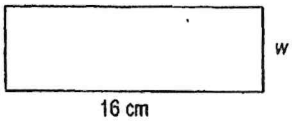
Unit: KNOWLEDGE of MEASUREMENT

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).** $A = l \times w$

The **missing measure** of a square or rectangle can be determined by using **division.**

Examples:



$A = 64\ cm^2$

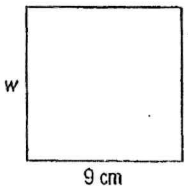
$A = l \times w$

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

$4 = w$

The width of the rectangle is 4 cm.

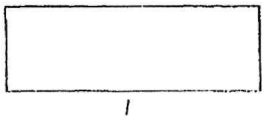
1.) Determine the missing side of the square. Please show your work.



$A = 81\ cm^2$

$w =$

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?