

GETTING READY FOR 8TH GRADE MATH

SUMMER



ASSIGNMENT

As you work through this summer math review, your priority should be the topics and skills that you feel less comfortable with or with which you want to get some extra practice. Focus your time and effort on strengthening those areas. If you feel confident that you have mastered a particular topic, consider completing a few representative problems to keep your skills sharp, rather than finishing every problem in that section.

Remember, this review is not about completing as many problems as possible—it is about **honestly assessing your strengths and areas for growth**. Everyone's mathematical journey is different. Use this opportunity to take ownership of your learning and prepare yourself for success in 8th grade math and beyond.

Try to work on the pages a little at a time throughout the summer, rather than completing it all at once. Consistent practice is the best way to maintain and improve your mathematical skills.

Have a wonderful summer!

Be proud of yourself for your hard work this year.

Rest, relax, and practice some math!



Mrs. Milligan, Ms. David, and Mr. W.

Review Topics Included

(Wow! You learned a lot of math this year!)

- Unit Rates
- Proportional and Nonproportional Relationships
- Proportions and Percents
 - Ratios and Rates
 - Solving Proportions
 - Scale Drawings and Models
 - Similar Figures/Object-Shadow Problems
 - Percent (find whole, find part, find percent)
 - Simple Interest ($I = prt$)
- Adding and Subtracting Rational Numbers
 - Fractions
 - Decimals
 - Integers
- Coordinate Plane
- Area and Perimeter/Circumference
 - Calculations
 - Applications
- Volume
- Surface Area
- Mean, Median, Mode, and Range
- Line Plots and Box-and-Whisker Plots
- Probability
 - Simple Probability
 - Theoretical vs Experimental Probability
 - Tree Diagrams
 - Compound Probability



New Jersey Student Learning Assessments - Adaptive

Mathematics Reference Sheets

Grade 7

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers
1 kilometer = 0.62 miles

1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallons
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$



New Jersey Student Learning Assessments - Adaptive

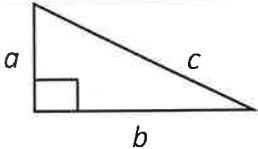
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Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3} \pi r^3$
Cone	$V = \frac{1}{3} \pi r^2 h$
Pythagorean Theorem	 $a^2 + b^2 = c^2$

UNIT RATES

Determine the unit rate for each situation.

Paid \$4.50 for 5 cookies	Travelled 50 miles in 2 hours
Raked 6 bags of leaves in 3 hours	Ate 6 slices of pizza in 1.5 hours
Spent \$65 on 4 board games	Watched 8 movies in 30 days
Walked 2 miles in 40 minutes	Spent \$10 on 6 candies
Blew up 5 balloons in 2 minutes	Jumped roped 20 times in 15 seconds
Bought 10 lemons for \$7.50	Drank 7 liters of water over 4 days
Read 12 pages of a book in 10 minutes	Put away 54 pieces of laundry in 14 minutes
Ran 10 kilometers in 3 days	Made 8 packs of slime from 3 bottles of glue

PROPORTIONAL & NONPROPORTIONAL

Determine whether each table shows a proportional or nonproportional relationship.

x	y
0	0
1	5
2	10
3	15

x	y
2	-4
3	-6
4	-8
5	-10

x	y
5	15
6	13
7	11
8	9

x	y
3	90
4	120
7	210
8	240

x	y
6	0
8	2
10	4
12	6

x	y
-2	10
0	0
2	-10
4	-20

x	y
4	8
7	14
10	20
13	26

x	y
-5	6
-3	16
-1	26
1	36

x	y
0	5
7	9
17	13
27	17

Unit 4 Test Study Guide

(Ratio, Proportion, & Percent)

Name: _____

Date: _____ Per: _____

Topic 1: Ratio & Rates

Use for questions 1-3: A tray of muffins contains 10 chocolate chip muffins; 12 blueberry muffins, 2 pumpkin muffins, and 8 corn muffins. Write each ratio in simplest form.

1. pumpkin muffins to chocolate chip muffins

2. blueberry muffins to corn muffins

3. chocolate chip muffins to total muffins

Write each ratio in simplest form. (*Remember to convert the measurement!*)

4. 8 feet to 6 yards

5. 76 centimeters to 1 meter

6. 6 cups to 4 pints

7. 9 gallons to 21 quarts

8. 45 seconds to 2 hours

9. 4 years to 8 months

Round to the nearest tenth or cent when necessary.

10. In five games of bowling, Gabe's combined score was 380. Find his score per game.

11. It took Ciera 24 minutes to drive 18 miles. It took James one hour to drive 46 miles. Who is driving at a faster rate?

Determine if Option A or Option B is the better deal. Justify your answer.

12. ☐ Option A: 2 lbs of pears for \$1.98
☐ Option B: 5 lbs of pears for \$4.60

13. ☐ Option A: a pack of 6 pens for \$4.74
☐ Option B: a pack of 15 pens for \$12.19

Topic 2: Proportional Relationships & Solving Proportions

Determine if a proportional relationship exists. If yes, give the constant rate.

14.

Minutes	1	8	18	32
Calories Burned	9	72	162	256

15.

Hours	2	6	8	14
Snowfall (in)	5	15	20	35

Determine if the ratios form a proportion.

16. $\frac{5}{27}, \frac{3}{16.2}$

17. $\frac{34}{9}, \frac{25}{7}$

Solve the proportion.

18. $\frac{x}{12} = \frac{15}{40}$

19. $\frac{20}{9.5} = \frac{36}{m}$

20. In a cookie recipe, $1\frac{2}{3}$ cups of milk makes 16 cookies. How many cups of milk are needed to make 24 cookies?

21. Runners in the half marathon entered in three waves. There were 341 runners in the first wave, 295 runners in the second wave, and 316 runners in the third wave. If seven out of eight runners finished the race, how many did not finish?

Topic 3: Scale Drawings & Models

22. On a map with a scale of 0.5 inch = 75 miles, the distance between two cities is 2.75 inches. Find the actual distance between the cities.

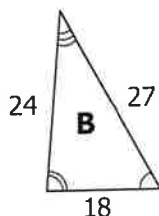
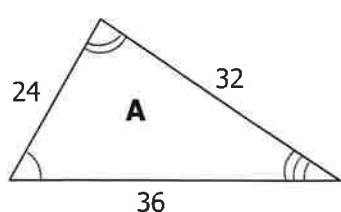
23. A model of the Cape Hatteras Lighthouse uses a scale of 8 inches = 30 feet. If the actual lighthouse is 210 feet tall, how tall is the model? Give your answer in feet.

24. Nate made a model of the USS Massachusetts Battleship that is 3 feet long. If the actual battleship is 681 feet long, what scale did he use?

25. Mr. Willis is building a new dock at his lakehouse that will be 35 feet long. If the blueprints show the dock as 16 inches long, what scale was used to create the blueprint?

Topic 4: Similar Figures & Indirect Measure

Use the similar figures below for questions 26-27.

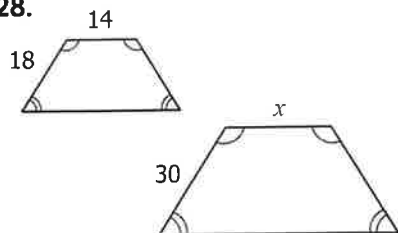


26. Give the scale factor of Figure A to Figure B.

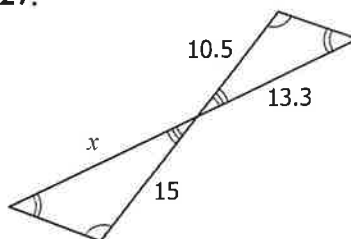
27. Give the scale factor of Figure B to Figure A.

If the figures below are similar, find the value of x .

28.

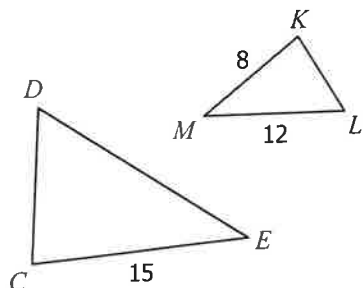


29.

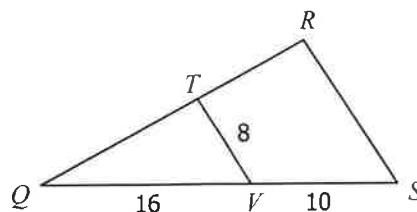


Use the given information to find each measure.

30. Given $\triangle CDE \sim \triangle KLM$, find DE .



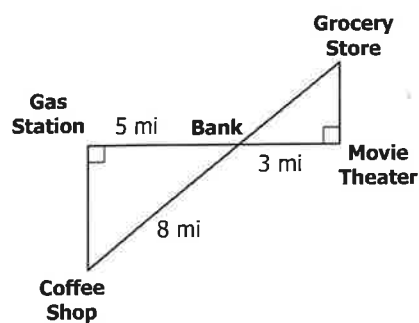
31. Given $\triangle QRS \sim \triangle QTV$, find RS .



32. A flagpole casts a 20-foot shadow at the same time Lexi casts a 5-foot shadow. If Lexi is 5'9", find the height of the flagpole.

33. A 15-foot street lamp casts a 9-foot shadow. If the street lamp is near a 71-foot building, find the length of the shadow casted by the building.

Use the diagram below to answer questions 34-35.



34. Find the distance from the bank to the grocery store.

35. Find the distance from the coffee shop to the grocery store, then back to the bank.

Topic 5: Percents

36. What percent of 80 is 18?

37. Find 42% of 135.

38. 10.2 is 21.25% of what number?

39. At Wally's school, 30% of the students are in 8th grade. If there are 470 students total, find the number of 8th grade students.	40. Laura spent 78.5% of her paycheck on her mortgage payment. If her mortgage was \$1,226.17, how much was her paycheck?
41. A stereo that regularly costs \$429.99 is on sale for 35% off. How much money will be discounted from the regular price?	42. Gas prices are typically marked up for holiday travel. If the prices are marked up 17.5% and the regular price per gallon is \$2.40, how much will Mitch pay for 16 gallons of gas?
43. Claire is buying a new bicycle for \$295. If the sales tax is 4.75%, what will she pay in total?	44. A \$1,349 television is on sale for 20% off. If sales tax is 8%, find the price of the television including tax.
45. The Barnes family has a coupon for 10% off their dinner. If their bill comes to \$82.50 and they wish to tip 15%, what will they pay in total?	46. A sign above a basket of DVDs reads "3 for \$17." Kellen decides to buy 6 DVDs and use a coupon for 25% off. If sales tax is 6%, what will he pay in total?

47. Manny bought a car for \$32,985. Five years later, the car was worth \$19,500. Find the percent change in the value of the car. Classify as a percent increase or percent decrease.	48. A painting that sold for \$4,500 in 2013 is now worth \$7,900. Find the percent change in value from then until now. Classify as a percent increase or decrease.
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Topic 6: Simple Interest

Assume each problem below refers to simple interest. Round to the nearest tenth or cent when necessary.	
49. Suppose \$3,750 is placed in a savings account for 4 years. Find the interest earned if the interest rate is 1.85%.	50. Simone borrowed \$13,500 from the bank to purchase a used car. If the interest rate on this 72-month loan is 5.9%, how much will Simone pay in total back to the bank?
51. Rylan placed \$1,200 in a retirement account. Seven years later, it had earned \$546 in interest. Find the interest rate.	52. Alexia took out a 12-year loan for \$72,000 to renovate her home. If her monthly payments are \$680, what is the interest rate?
53. How many years will it take a \$5,000 investment to reach \$7,500 at an 8% interest rate?	54. Andy took out a 5-year loan at a 12.5% interest rate to pay for a trip to Spain. If he ended up paying \$4,937.50 in interest, how much was the trip?

SOLVING PROPORTIONS

Solve each proportion. Leave your answer as a simplified fraction or decimal.

$$\frac{x}{3} = \frac{4}{6}$$

$$\frac{6}{5} = \frac{x}{4}$$

$$\frac{3}{5} = \frac{6}{x}$$

$$\frac{x}{7} = \frac{1}{6}$$

$$\frac{6}{x} = \frac{24}{2}$$

$$\frac{45}{3} = \frac{9}{x}$$

$$\frac{x}{3} = \frac{42}{10}$$

$$\frac{11}{x} = \frac{22}{5}$$

$$\frac{6}{5} = \frac{10}{x}$$

TAX & DISCOUNT

Find the final price after each tax and discount.

A \$25 t-shirt with 7% sales tax	A \$40 hat on sale for 30% off
A \$250 couch with 10% sales tax	A \$12 slime on sale for 10% off
An \$800 phone with a 5% sales tax	A \$45 sweatshirt on sale for 25% off
\$55 headphones with 6% sales tax	A \$39 chess set on sale for 40% off
\$80 sneakers with 9% sales tax	A \$25 mug on sale for 50% off
\$15 movie ticket with 11% sales tax	A \$225 bike on sale for 20% off

ADDING & SUBTRACTING FRACTIONS

Add or subtract the fractions. Simplify your answer.

$\frac{1}{2} + \frac{1}{2} =$	$\frac{1}{3} + \frac{1}{3} =$	$\frac{1}{4} + \frac{2}{4} =$
$\frac{2}{5} - \frac{1}{5} =$	$\frac{3}{6} - \frac{5}{6} =$	$\frac{1}{7} - \frac{8}{7} =$
$\frac{5}{8} - \frac{7}{8} =$	$-\frac{5}{9} - \frac{1}{9} =$	$-\frac{3}{10} + \frac{7}{10} =$
$\frac{1}{2} + \frac{5}{4} =$	$\frac{2}{9} + \frac{1}{3} =$	$\frac{1}{4} + \frac{2}{16} =$
$\frac{2}{3} - \frac{1}{5} =$	$\frac{3}{6} - \frac{5}{4} =$	$\frac{1}{2} - \frac{8}{7} =$
$\frac{5}{8} - \frac{7}{5} =$	$-\frac{5}{4} - \frac{1}{9} =$	$-\frac{3}{10} + \frac{7}{3} =$

MULTIPLYING & DIVIDING FRACTIONS

Multiply or divide the fractions. Simplify your answer.

$\frac{5}{2} \cdot \frac{1}{2} =$	$\frac{1}{3} \cdot \frac{1}{3} =$	$\frac{1}{4} \cdot \frac{2}{4} =$
$-\frac{2}{5} \cdot \frac{3}{5} =$	$\frac{3}{6} \cdot -\frac{5}{6} =$	$-\frac{1}{4} \cdot -\frac{8}{7} =$
$4(\frac{5}{8}) =$	$-3(\frac{2}{3}) =$	$-2(\frac{4}{9}) =$
$\frac{1}{2} \div \frac{5}{4} =$	$\frac{2}{9} \div \frac{1}{3} =$	$\frac{1}{4} \div \frac{2}{5} =$
$-\frac{2}{3} \div \frac{1}{5} =$	$\frac{3}{6} \div -\frac{5}{4} =$	$-\frac{1}{2} \div -\frac{8}{7} =$

ADDING & SUBTRACTING (+ / -)

Simplify each expression.

$5 + (-6)$	$-7 + 10$	$-3 - (-8)$
$-4 + (-2)$	$10 - (-1)$	$16 + (-2)$
$5.4 + (-6.2)$	$-0.7 + 10.4$	$-3.5 - (-8.8)$
$-4.5 + (-2.5)$	$10.7 - (-1.4)$	$1.6 + (-2.4)$
$45 + (-16)$	$-27 + 130$	$-34 - (-81)$
$-40 + (-24)$	$104 - (-17)$	$176 + (-24)$

MULTIPLYING & DIVIDING (+ / -)

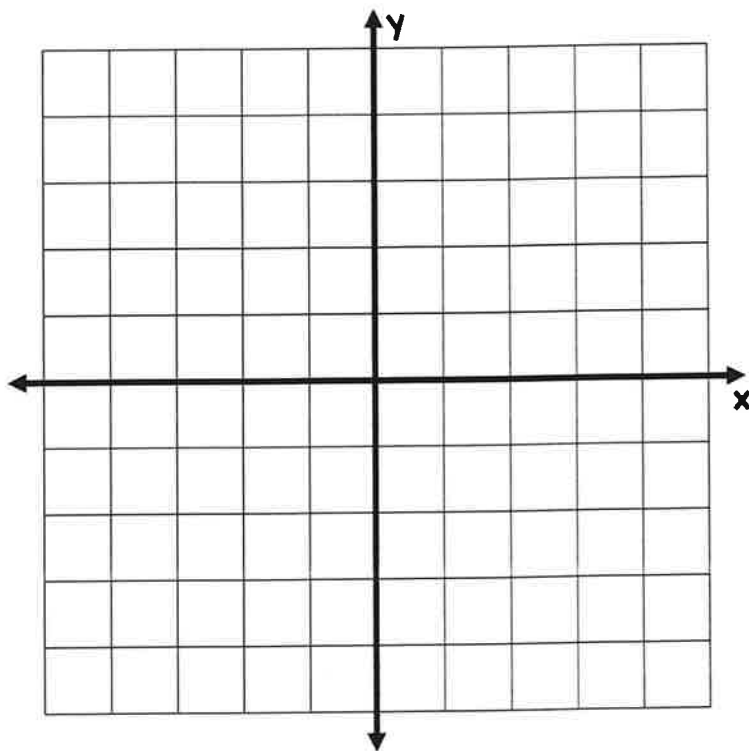
Simplify each expression.

$5(-6)$	$-7(10)$	$-3(-8)$
$-4(-2)$	$10(-1)$	$16(-2)$
$5.4(-6.2)$	$-0.7(10.4)$	$-3.5(-8.8)$
$10 \div (-16)$	$-8 \div 4$	$-3 \div -18$
$-40 \div -2$	$10 \div -15$	$16 \div -12$
$5.4 \div -0.6$	$-0.7 \div 14$	$-3.5 \div -10.5$

THE COORDINATE PLANE

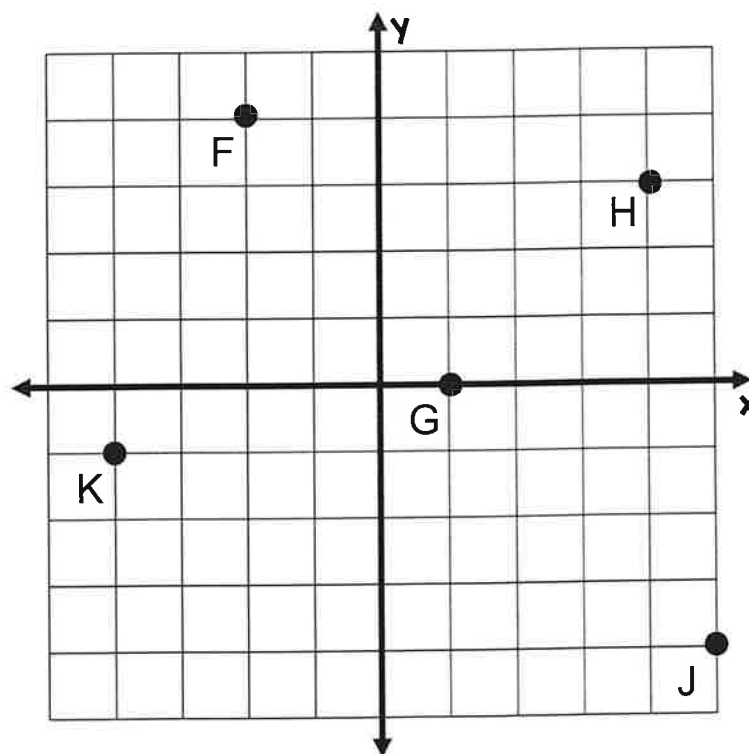
Plot each point on the coordinate plane and name the quadrant the point is in.

Point	Quadrant
A(3, 4)	
B(5, -1)	
C(0, 5)	
D(-2, -3)	
E(-4, 0)	



Plot each point on the coordinate plane and name the quadrant the point is in.

Point	Quadrant
F()	
G()	
H()	
J()	
K()	



Name: _____

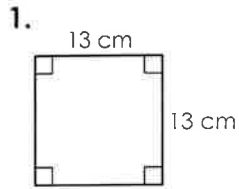
Unit 8: Measurement (Area and Volume)

Date: _____ Per: _____

Homework 1: Perimeter and Area

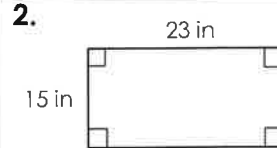
**** This is a 2-page document! ****

Directions: Find the perimeter and area of each figure.



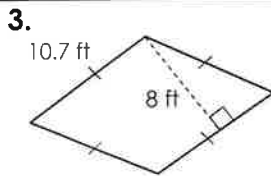
$P =$ _____

$A =$ _____



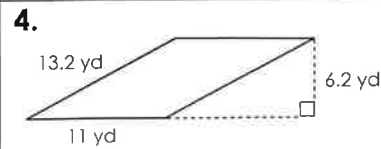
$P =$ _____

$A =$ _____



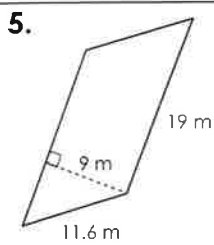
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$A =$ _____



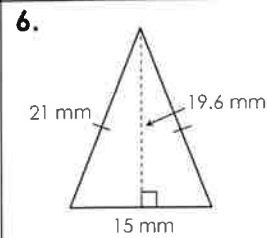
$P =$ _____

$A =$ _____



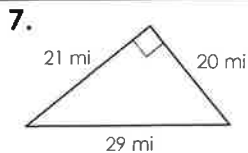
$P =$ _____

$A =$ _____



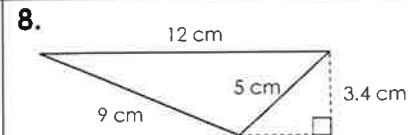
$P =$ _____

$A =$ _____



$P =$ _____

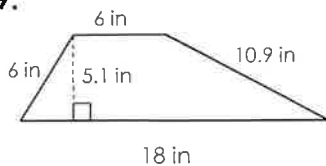
$A =$ _____



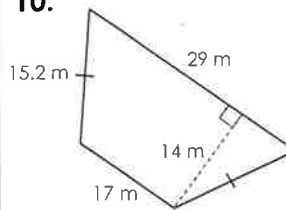
$P =$ _____

$A =$ _____

9.

 $P =$ $A =$

10.

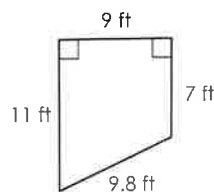
 $P =$ $A =$

11. If the area of a triangle with a base measuring 22 feet is 93.5 square feet, find its height.

12. A trapezoid has a height of 6 inches, an area of 120 square inches, and one base measuring 13 inches. Find the length of the other base.

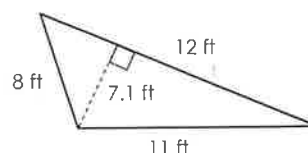
13. Mark is hosting a "Who Dunnit?" party at his house. He plans on taping off a triangular section of his backyard to represent the crime scene. If the sides measure 23 feet, 15 feet, and 32 feet, how much tape will he need?

14. A sandbox in the shape of a trapezoid is shown below. If a cover is to be made for the sandbox, what is the minimum amount of fabric needed?



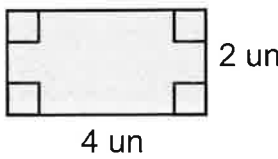
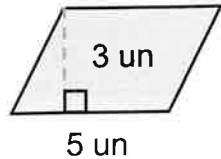
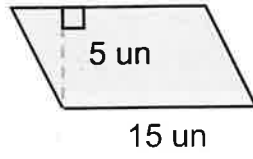
15. Adalyn's mom is painting a wall in her bedroom with chalkboard paint. If the dimensions of the wall are 12 feet by 9 feet and one can of paint covers up to 110 square feet, will one can be enough to cover the wall? Explain.

16. Mr. Holmes is buying mulch for his triangular-shaped garden shown below. The mulch he is purchasing costs \$3.75 per bag. If each bag covers 18 square feet, how much will it cost him?

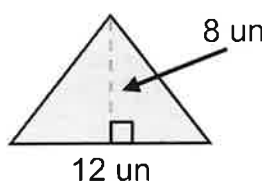
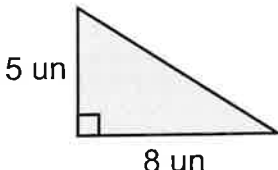
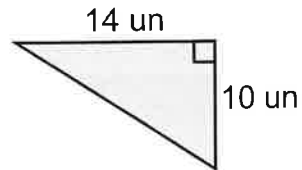


AREAS OF PARALLELOGRAMS, TRIANGLES, AND TRAPEZOIDS

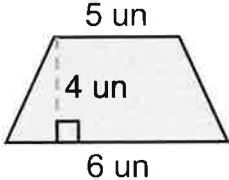
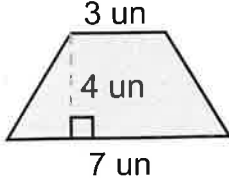
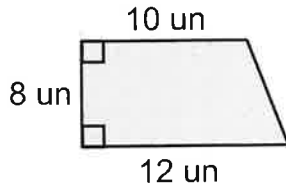
Find the area of each parallelogram, given the formula: $A = bh$

		
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Find the area of each triangle, given the formula: $A = \frac{1}{2}bh$

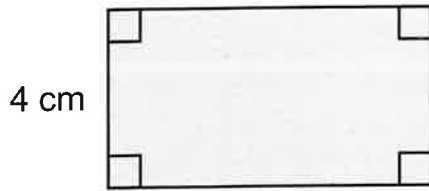
		
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Find the area of each trapezoid, given the formula: $A = \frac{1}{2}h(b_1 + b_2)$

		
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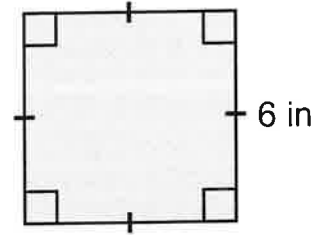
CALCULATING AREA

Determine the area of each figure.

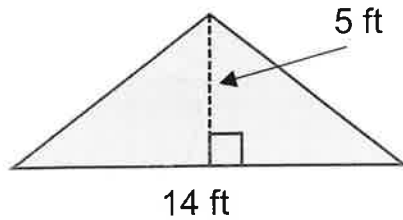


12.5 cm

$$A = lw$$

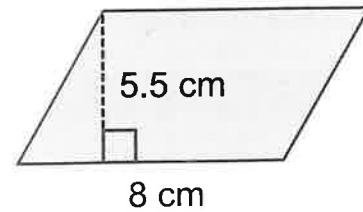


$$A = s^2$$



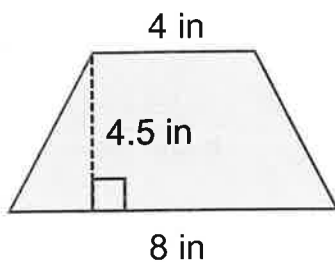
14 ft

$$A = \frac{1}{2}bh$$



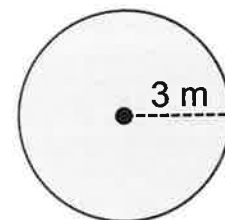
8 cm

$$A = bh$$



8 in

$$A = \frac{1}{2}h(b_1 + b_2)$$

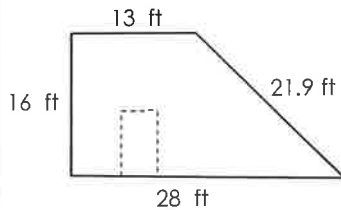


$$A = \pi r^2$$

PERIMETER & AREA Applications

Directions: Read each problem carefully and solve! Draw pictures when necessary.

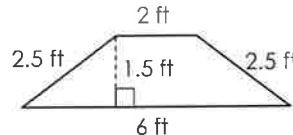
- 1 A 7-foot by 3-foot doorway is to be cut into a trapezoid-shaped wall as shown below. Find the area of the wall with the door cut out.



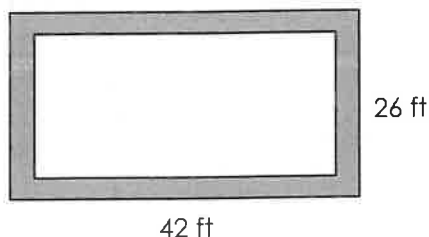
- 2 Mr. Brinkley has a triangular-shaped area for his horses with sides measuring 30 meters, 64 meters, and 87 meters. He would like to enclose this area with a fence. If the fencing comes in 2.5-meter sections, how many sections of fence will he need?

- 3 An Olympic-sized pool measures 50 meters by 25 meters. If a coach asked his swimmers to swim around the pool three times, how far will they swim?

- 4 Mrs. Humphrey needs to replace a broken window on her house. The window is shaped like a trapezoid with dimensions shown below. If glass costs \$21.50 per square foot, how much will the replacement window cost?



Use for questions 5-6: Plans for a rectangle-shaped garden will include a 2-foot wide cement walkway surrounding it, as shown in the picture below.

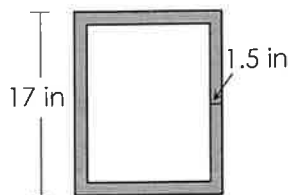


- 5 If concrete costs \$4.50 per square foot, how much will it cost to fill the walkway?

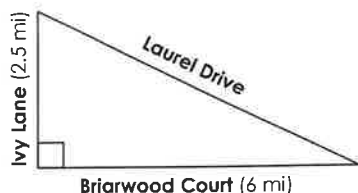
- 6 For the holiday season, lights will be strung along each side of the walkway. If one box of lights will cover 10 feet of walkway, how many boxes are needed?

- 7 Mr. Marsh plans to tile the floor in his 6-foot by 8-foot front hall. If each tile is an 8-inch square, what is the minimum number of tiles needed to cover the floor?

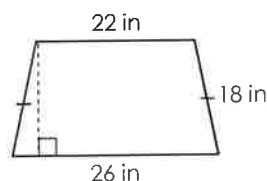
- 8 The total area of a picture frame, including the glass and 1.5-inch wide wooden frame, is 238 square inches. If the frame is 17 inches tall, what are the dimensions of the maximum picture size that will fit in the frame?



- 9 The intersections of three streets form a triangle as shown below. If Kelly decides to make this triangle her running route today, how far will she run?

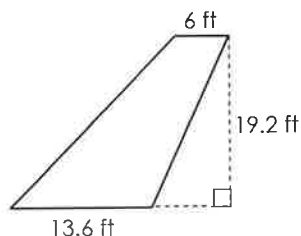


- 10 Mrs. Watson has 30 desks in her math class, each shaped like the trapezoid shown below. She plans to cover each one with bulletin board paper for a project. What is the minimum amount of paper she will need?



- 11 One of the display boards at the Dallas Cowboys' stadium has a screen size of 11,393 square feet. If the width of the board is 160 feet, find its height.

- 12 The vertical tail on an airplane is shaped like a trapezoid, with dimensions shown below. If each side of the tail is to be painted, and one can of paint covers 150 square feet, how many cans of paint are needed?



Name: _____

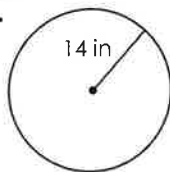
Unit 8: Measurement (Area and Volume)

Date: _____ Per: _____

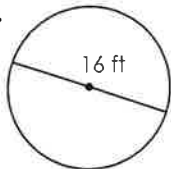
Homework 2: Area & Circumference of Circles

**** This is a 2-page document! ******Directions:** Find the area and circumference of each circle. Round to the nearest tenth.

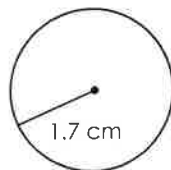
1.

 $A =$ $C =$

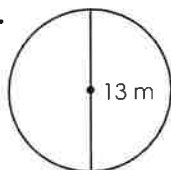
2.

 $A =$ $C =$

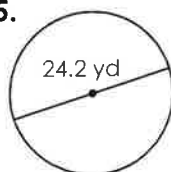
3.

 $A =$ $C =$

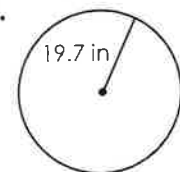
4.

 $A =$ $C =$

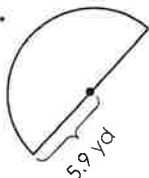
5.

 $A =$ $C =$

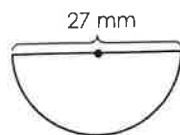
6.

 $A =$ $C =$ **Directions:** Find the area of each semicircle. Round to the nearest tenth.

7.

 $A =$

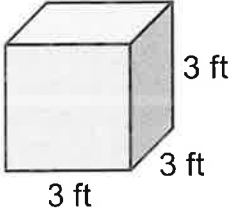
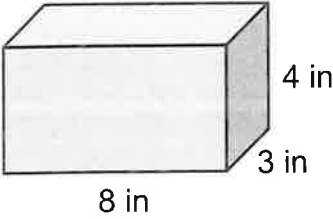
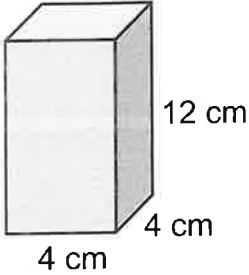
8.

 $A =$

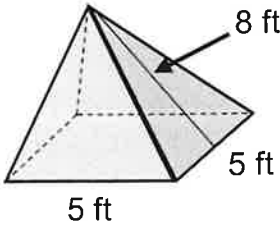
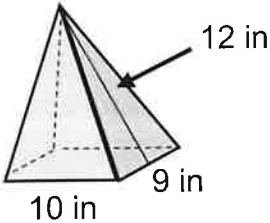
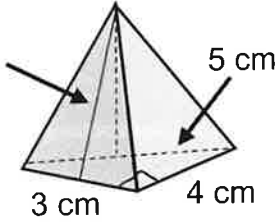
9. If a penny has a circumference of 59.69 millimeters, what is the radius of a penny?	10. A drink coaster in the shape of a circle has an area of 19.63 square inches. Find the diameter of the coaster.
11. A dog is leashed to a point in the center of a large yard. If the leash is 18.8 feet long, what is the total area of the region the dog is able to explore?	12. A Ferris wheel has a diameter of 95 feet. How far will someone travel if they ride two full rotations on the wheel?
13. A bowling ball has a diameter of 8.5 inches. If it is rolled down a 60-foot bowling lane, how many complete revolutions will it make?	14. It costs a pool cover manufacturer \$0.15 per square foot for the material they use to make pool covers. If a certain circular pool requires a cover with a 24-foot diameter, find the cost for the material.
15. Maggie has a circular table cloth with a 72-inch diameter that she plans to sew lace around. If the lace comes in 3-foot rolls, how many rolls will she need?	16. Find the area of a circle with a circumference of 31.42 centimeters.

VOLUME: PRISMS & PYRAMIDS

Find the volume of each prism. $V = Bh$

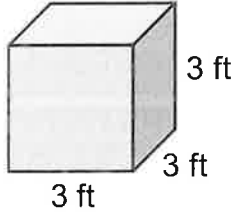
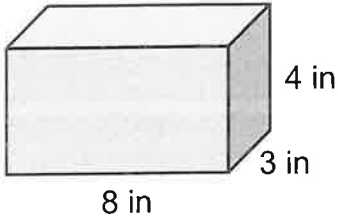
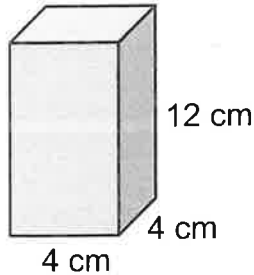
		
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Find the volume of each pyramid. $V = \frac{1}{3}Bh$

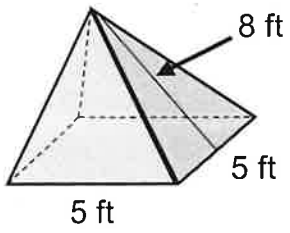
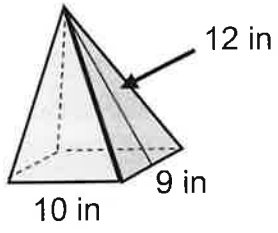
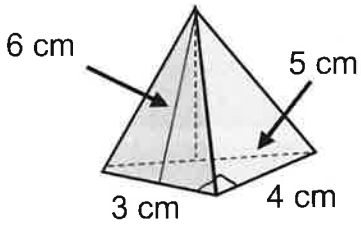
		
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SURFACE AREA: PRISMS & PYRAMIDS

Find the surface area of each prism. $SA = LA + PB$

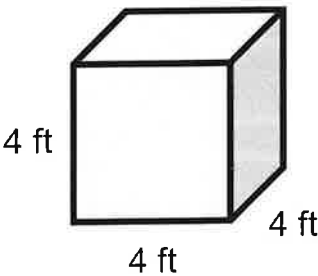
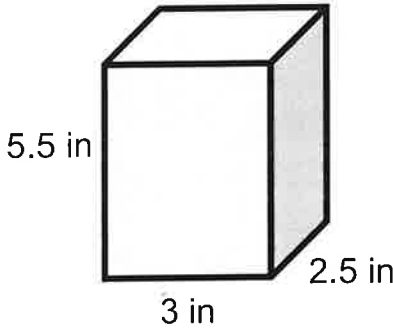
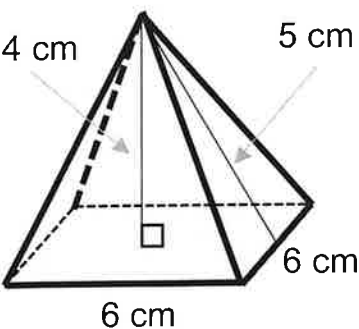
 A cube with side length 3 ft.	 A rectangular prism with length 8 in, width 3 in, and height 4 in.	 A rectangular prism with length 4 cm, width 4 cm, and height 12 cm.
--	---	--

Find the surface area of each pyramid. $SA = LA + B$

 A square pyramid with base side length 5 ft and slant height 8 ft.	 A rectangular pyramid with base length 10 in, base width 9 in, and slant height 12 in.	 A rectangular pyramid with base length 3 cm, base width 4 cm, and slant height 6 cm.
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VOLUME & SURFACE AREA

Determine the volume and surface area of each figure.

3-Dimensional Figure	Volume	Surface Area
Cube 	$V = lwh$ or $V = s^3$	$SA = 2(lw) + 2(wh) + 2(lh)$ or $V = 6s^2$
Rectangular Prism 	$V = lwh$	$SA = 2(lw) + 2(wh) + 2(lh)$
Square Pyramid 	$V = \frac{1}{3}Bh$	$SA = \frac{1}{2}Pl + B$

STATISTICS:

MEAN, MEDIAN, MODE, & RANGE

Calculate the mean, median, mode, and range for each set of data.

10 students were asked about their shoe size:

Data: 7, 6, 7, 5, 5, 8, 9, 7, 6, 10			
Mean	Median	Mode	Range

12 students were asked how many pets they have had in their life:

Data: 0, 0, 3, 1, 2, 2, 3, 6, 1, 0, 4, 3			
Mean	Median	Mode	Range

9 students were asked about their height in inches:

Data: 60, 61.5, 62, 59, 59, 61, 55, 60, 57.5			
Mean	Median	Mode	Range

LINE PLOTS & BOX PLOTS

Display the sets of data as line plots.

Scores on the last math test: 90, 85, 90, 80, 80, 100, 95, 75, 85, 60, 90, 70, 70, 90, 100, 85, 80, 75, 65, 90	
Number of goals a team scored in 15 soccer games: 2, 0, 1, 5, 3, 4, 1, 1, 2, 3, 6, 1, 0, 2, 5	

Calculate the five points of data and create a box and whisker plot.

Data: 6, 10, 7, 3, 5, 2, 2, 8, 1, 12, 8, 10, 5	
Minimum:	
Lower quartile:	
Median:	
Upper quartile:	
Maximum:	



Name: _____

Unit 9: Probability & Statistics

Date: _____ Per: _____

Homework 1: Simple Probability

**** This is a 2-page document! ******Directions:** Give each probability as a simplified fraction, decimal, and percent.

1. A bean bag is randomly tossed onto the board below. Find each probability.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

a) $P(4)$ b) $P(\text{odd number})$ c) $P(\text{shaded})$ d) $P(\text{prime number})$ e) $P(\text{at least } 14)$ f) $P(\text{unshaded or even})$

2. A card is randomly chosen from a standard deck of cards. Find each probability.

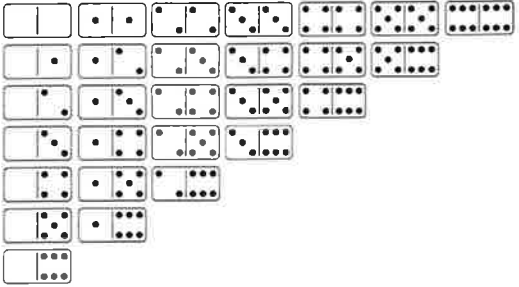
a) $P(2 \text{ of spades})$ b) $P(\text{heart})$ c) $P(7 \text{ or jack})$ d) $P(\text{face card})$ e) $P(\text{black } 10)$ f) $P(\text{red or ace})$

3. A cookie jar contains four oatmeal raisin, one sugar, nine chocolate chip, and six peanut butter cookies. If one is chosen at random, find each probability.

a) $P(\text{oatmeal raisin})$ b) $P(\text{sugar or chocolate chip})$ c) $P(\text{not peanut butter})$ d) $P(\text{M\&M cookie})$

4. A letter from the word below is chosen at random. Find each probability.

PHOTOSYNTHESISa) $P(N)$ b) $P(O)$ c) $P(\text{a vowel})$ d) $P(H \text{ or } S)$ e) $P(\text{a letter with at least one line of symmetry})$

5. A standard set of dominoes is shown below. If one is chosen at random, find each probability related to the total number of dots on the domino. 	a) $P(\text{odd number of dots})$		b) $P(2 \text{ dots})$
	c) $P(\text{not } 7 \text{ dots})$		d) $P(\text{at most } 8 \text{ dots})$
	e) $P(\text{greater than } 10 \text{ dots})$		f) $P(\text{multiple of } 4 \text{ dots})$
6. A day of the week is randomly chosen. Find each probability.	a) $P(\text{Wednesday})$		b) $P(\text{Monday or Friday})$
	c) $P(\text{starts with T})$		d) $P(\text{not Saturday})$
7. A jar contains 6 pennies, 14 nickels, 16 dimes, and 4 quarters. If one coin is chosen at random, find each probability.	a) $P(\text{quarter})$		b) $P(\text{penny})$
	c) $P(\text{nickel or dime})$		d) $P(\text{silver coin})$
	e) $P(\text{worth at least } 5 \text{ cents})$		f) $P(\text{not a dime})$
8. If the probability of a basketball player making a shot is $\frac{5}{12}$, what is the probability of him not making the shot?		9. If the probability of a spinner landing on blue in a game is $\frac{1}{8}$, what is the probability of it not landing on blue? Give your answer as a percent.	
10. If a standard dice is rolled, what is the probability that it does not land on 4?		11. A traffic light is green for 2 minutes, red for 40 seconds, and yellow for 10 seconds. When a car approaches the light, what is the probability that it is not red?	

Name: _____

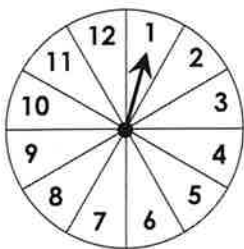
Unit 9: Probability & Statistics

Date: _____ Per: _____

Homework 2: Theoretical vs. Experimental Probability

**** This is a 2-page document! ******Give each probability as a simplified fraction, decimal, and percent.**

1. If the spinner below is spun once, find each probability.

a) $P(4)$ b) $P(\text{a number less than } 10)$ c) $P(\text{a prime number})$

2. The table below shows the results of an experiment in which the spinner above was spun 60 times. Find each probability based on the experiment and compare to the theoretical probability.

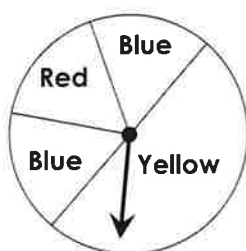
Result	Frequency	Result	Frequency
1	###	7	###
2		8	
3	###	9	
4		10	###
5	###	11	###
6	###	12	

a) $P(4)$ b) $P(\text{a number less than } 10)$ c) $P(\text{a prime number})$

3. Theoretically, if the spinner is spun 150 times, how many times would you expect to get an even number?

4. Based on the experiment, if the spinner is spun 150 times, how many times would you expect to get an even number?

5. If the spinner below is spun once, find each probability.

a) $P(\text{red})$ b) $P(\text{yellow or blue})$ c) $P(\text{not blue})$

6. The table below shows the results of an experiment in which the spinner above was spun 50 times. Find each probability based on the experiment and compare to the theoretical probability.

Result	red	yellow	blue
Frequency	8	24	18

a) $P(\text{red})$

b) $P(\text{yellow or blue})$

c) $P(\text{not blue})$

7. Theoretically, if the spinner is spun 400 times, how many times would you expect to get blue?

8. Based on the experiment, if the spinner is spun 400 times, how many times would you expect to get blue?

9. A card is drawn from a standard deck of cards. Find each probability.

a) $P(\text{club})$

b) $P(\text{red card})$

c) $P(\text{not a heart})$

10. The table below shows the results of an experiment in which a card was drawn at random 30 times. Find each probability based on the experiment and compare to the theoretical probability.

Result	Frequency
Heart	3
Diamond	10
Club	5
Spade	12

a) $P(\text{club})$

b) $P(\text{red card})$

c) $P(\text{not a heart})$

11. Theoretically, if a card is drawn at random 500 times, how many times would you expect to get a spade?

12. Based on the experiment, if a card is drawn at random 500 times, how many times would you expect to get a spade?

Name: _____

Unit 9: Probability & Statistics

Date: _____ Per: _____

Homework 4: Compound Probability

**** This is a 2-page document! ******Directions:** Give each probability as a simplified fraction.

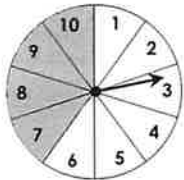
1. If a standard die is rolled twice, find each probability.

a) $P(\text{odd both times})$ b) $P(\text{both perfect squares})$ c) $P(\text{even, then less than 5})$ d) $P(\text{prime, then 6})$ e) $P(\text{the same number both times})$ f) $P(\text{at least 4 both times})$

2. A coin is tossed, then a letter from the word INDIANAPOLIS is selected at random. Find each probability.

a) $P(\text{heads, then P})$ b) $P(\text{tails, then a vowel})$ c) $P(\text{tails, then N})$ d) $P(\text{heads, then D or I})$

3. The spinner below is spun, then a month of the year is randomly selected. Find each probability.

a) $P(\text{at most 7, then February})$ b) $P(4, \text{ then a month that starts with the letter J})$ c) $P(\text{unshaded, then a month that starts with the letter A})$ d) $P(\text{multiple of 3, then a month with exactly 30 days})$ 4. A jar contains 8 green, 4 blue, 10 red, and 2 yellow Skittles. A Skittle is randomly drawn, **replaced**, then another is drawn. Find each probability.a) $P(\text{red, then yellow})$ b) $P(\text{blue, then green})$ c) $P(\text{both blue})$ d) $P(\text{both red})$

5. A piggy bank contains 4 quarters, 18 dimes, 10 nickels, and 8 pennies. A coin is chosen at random, not replaced , then another is chosen. Find each probability.	a) $P(\text{penny, then dime})$	b) $P(\text{quarter, then nickel})$																									
	c) $P(\text{silver coin, then penny})$	d) $P(\text{both pennies})$																									
	e) $P(\text{both dimes})$	f) $P(\text{worth at least } 10¢, \text{ then penny})$																									
6. A math class is playing a game with 16 questions that uses the board below. Once a question is called, it is not called again. Find the probability of the first two questions called. <table border="1"><tr><td></td><td>M</td><td>A</td><td>T</td><td>H</td></tr><tr><td>W</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>H</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>I</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>Z</td><td>13</td><td>14</td><td>15</td><td>16</td></tr></table>		M	A	T	H	W	1	2	3	4	H	5	6	7	8	I	9	10	11	12	Z	13	14	15	16	a) $P(1, \text{ then an even number})$	b) $P(\text{both odd})$
		M	A	T	H																						
	W	1	2	3	4																						
H	5	6	7	8																							
I	9	10	11	12																							
Z	13	14	15	16																							
c) $P(\text{both in column A})$	d) $P(\text{row H, then row Z})$																										
e) $P(13, \text{ then less than } 10)$	f) $P(\text{row W, then a multiple of } 5)$																										
7. If a coin is tossed seven times, what is the probability of it landing on heads each time?	8. While golfing, Kevin made 16 out of his last 21 putts. His friend Mike made 9 out of his last 14 putts. What is the probability that they both make their next putt?																										
9. If the probability that it will snow on Monday is $\frac{8}{9}$ and the probability that it will snow on Tuesday is $\frac{3}{16}$, find the probability that it does not snow either day.	10. A pop quiz contains five questions: two multiple choice questions with four options each and three true-false questions. If Brad randomly guesses, what is the probability that he gets all five answers correct?																										

PROBABILITY: COMBINATIONS

Determine the number of combinations possible for each meal scenario by drawing an appropriate tree diagram.

Breakfast:

Meal options: Cereal, Breakfast Sandwich, Yogurt, Smoothie, or Omelet

Drink options: Juice, Milk, Water

Number of combinations:

Lunch:

Meal options: Chicken Fingers, Hamburger, Salad, or Fish Sticks

Drink Options: Juice, Water, Soda, Iced Tea

Number of combinations:

Dinner:

Meal options: Chicken, Pasta, Steak, Grilled Vegetables, or Fish

Dessert options: Cake, Pudding, or Iced Cream

Drink Options: Water, Soda, Iced Tea

Number of combinations: