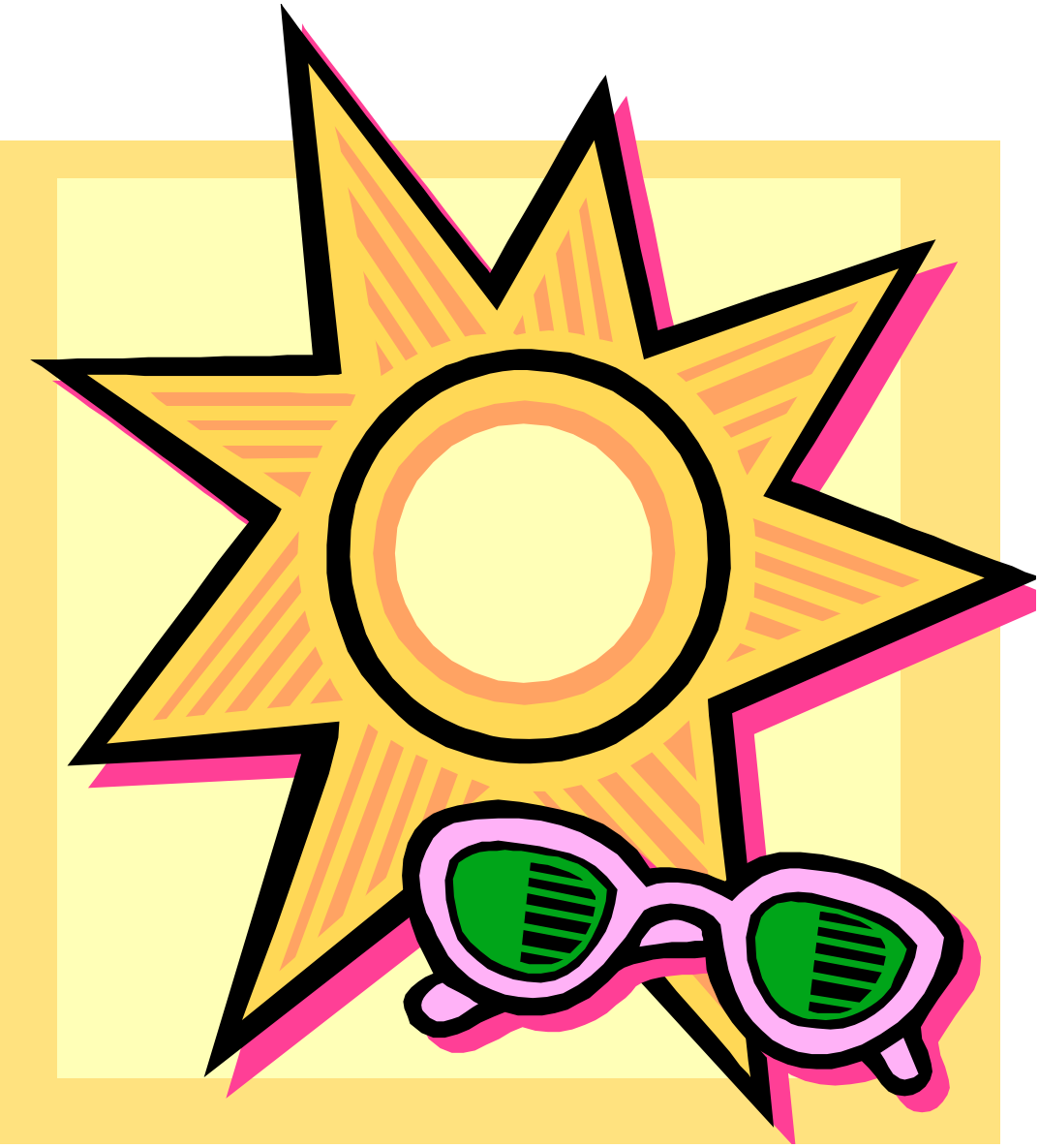
MATH 8 / ALGEBRA

Summer Math Packet



Complete the following problems over the summer to keep your math skills sharp before the next school year. You may use a calculator, but be sure to show all your steps with each problem and to label answers whenever possible.

NAME _____

Question 1 :

What is the value of $(12-8)^2 + 21 - 4$?

Question 2 :

What is the value of $3 + 7(2^3 - 6)^2$?

Question 3 :

Evaluate the expression below.

$$\frac{(3+1)^2}{1-3}$$

Question 4 :

What is the value of $(7 - 3)^{-2} \cdot 2^3 + 4 \cdot 3$?

Question 5 :

Write one member of the real number system that is *not* a rational number?

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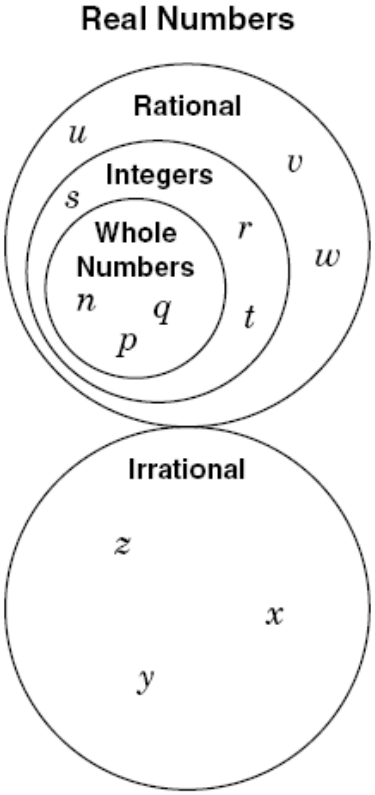
Question 6 :

The diagram shows how some of the subsets of the set of real numbers are related. The letters represent members of the sets.



Terrie wants to replace the letters with actual numbers. Which letter could be replaced with -3?

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Question 7 :

Which set contains $\sqrt{7}$?

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Question 8 :

Chris put $1,500 in a savings account at an annual interest rate of 5%. If Chris does not deposit or withdraw any money, what is the amount of interest Chris will earn the first year her money is in the savings account? Use the formula i=prt to find the solution

Question 9:

Mark layered 3 pieces of wood to build the base for a lamp. The pieces were $\frac{1}{4}$ inch thick, $\frac{5}{8}$ inch thick, and $\frac{3}{16}$ inch thick. How thick was the base for the lamp?

Question 10:

Chris used a copy machine to enlarge a drawing to 150% of its original size. If the width of the original drawing was 37 centimeters, what is the width of the copy of the drawing? Use a proportion to set up and solve.

Question 11:

Jeffrey's dogs ate 42 pounds of food during July. At that rate, how many days would a 100-pound bag of dog food would last? Round to the nearest whole day.

Question 12 :

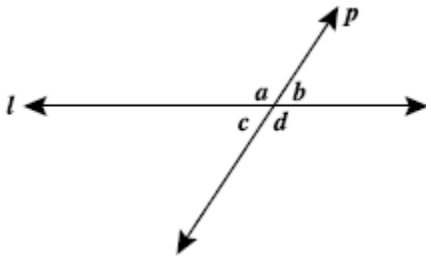
The scale blueprint of a rectangular patio is drawn $\frac{1}{8}$ inch to 1 foot. If the patio is 14 feet long, what is the measure of the patio's length on the blueprint?

Question 13:

A cylindrical tub of popcorn is 8 inches high and has a diameter of 6 inches. Which is closest to the number of cubic inches of popcorn the tub can hold?

Question 14:

In the diagram below, lines *l* and *p* intersect.



If the measure of $\angle a$ is 109° what is the measure of $\angle b$?

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Question 15:

If $\angle QRS$ and $\angle XYZ$ are complementary, which *must* be true?

A: One of the angles can measure between 90° and 180°.

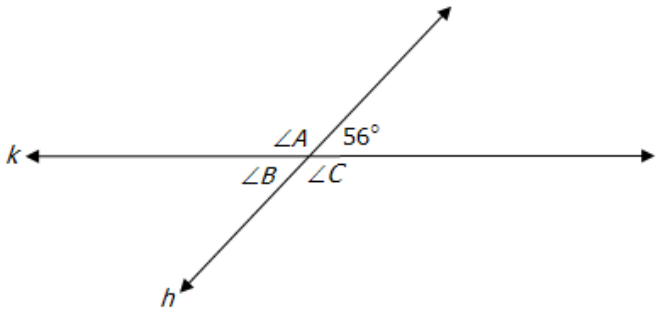
B: The sum of the measures of the angles is 90°.

C: The sum of the measures of the angles is 180°.

D: Both angles must measure more than 90°.

Question 16:

In the diagram below, lines *h* and *k* intersect



What is the measure of $\angle C$?

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Question 17:

What is the value of 6n(n – 1) + 4 , when n = 3?

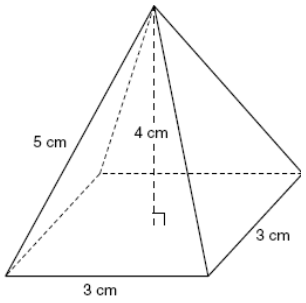
Question 18:

What is the value of $n^2(m + r)$ if m = 3, n = 2 and r = 4?

Question 19:

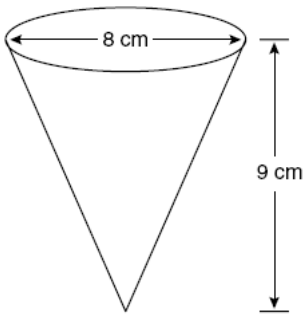
What is the value of 5n + 3(6 – n) when n = 4 ?

Question 20:



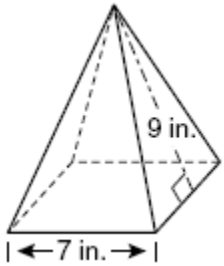
What is the volume of the square-based pyramid shown above?

Question 21:



Find the volume of this circular cone. Round to the nearest hundredth.

Question 22:



What is the total surface area of the pyramid?

Question 23:

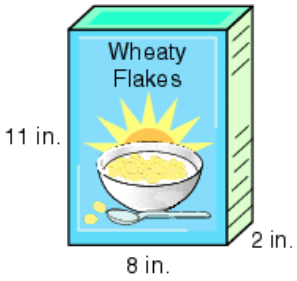
A cylindrical chemical tank is 12 feet high and has a diameter of 45 feet. How much cubic feet of liquid the tank will hold? Round to the nearest hundredth.

Question 24:

A fish tank, shaped like a rectangular prism, can hold 1,872 gallons of water. If the length is 24 inches and the depth is 6 inches, what is the height?

Question 25:

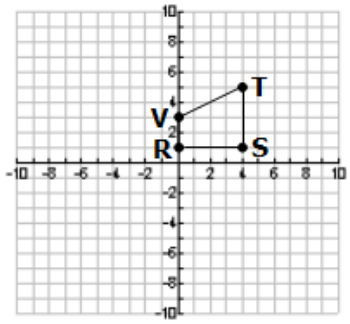
For a class project, Sara needs to cover this cereal box with paper.



How much paper will she need to cover all the faces of the cereal box?

Question 26:

Dilate the figure using a scale factor of 2 and using the origin as the center of dilation.



What is the location of the image of vertex T?

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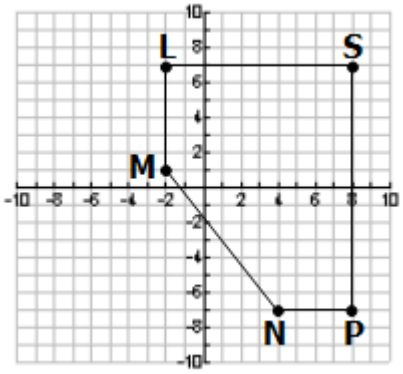
Question 27:

Translate the figure horizontally -4 units and vertically +3 units.



What is the location of the image of vertex M?

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Question 28:

A circle, located on a coordinate plane, has a center at (-2, 3). What would the new center be if the circle is translated 5 units to the left and 6 units up?

Question 29:

Mr. Jones takes a picture and enlarges it to poster size. This is an example of which type of transformation?

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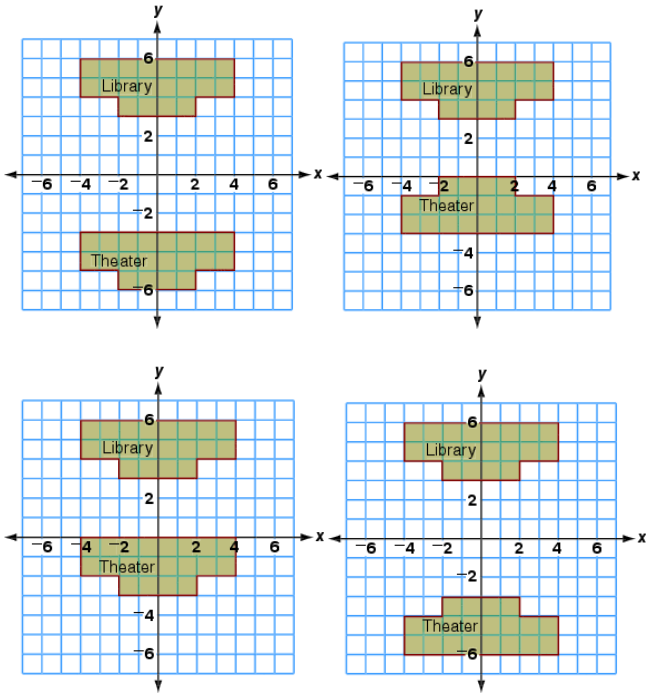
Question 30:

City architects are drawing a plan for a new library and theater on a coordinate grid. The designers want the theater and the library to be the same size and shape but to be placed so that the theater is a reflection of the library. The plan calls for the reflection to be over the *x*-axis. Circle the design which shows the buildings placed correctly?



Question 31:

What is the solution for $5(x - 3) = 15$?

Question 32:

What is the solution to $3x - 4 = 17$

Question 33:

What is the solution to $\frac{1}{2}x + 3 = 7$

Question 34:

What is the solution of:

$5x + 2 = 9x - 4$?

Question 35:

Solve for the following. The give 3 possible solutions for the inequality.

$2x + 4 < 12$

Question 36:

Solve for the inequality. Is 4 a solution? Is 3 a solution? Is 2?

$7x - 3 < 18$

4 Yes No

3 Yes No

2 Yes No

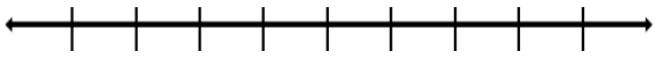
Question 37:

An elevator can only hold 600 pounds safely. The people on the elevator already weigh 350 pounds together. Lilah wants to get on the elevator with some luggage. If Lilah weighs 140 pounds, write an inequality can be used to find how much the luggage can weigh for the elevator ride to be safe?

Question 38:

Solve, graph, then write in words the solution of

$$-\frac{a}{5} + 3 > 6 \text{ ?}$$



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