Practice Questions

Test #3

Chapters 14, 15, 17, 18, 19

Chapter 14 – Alegbra and Word Problems

$(3x - 1)(x + 2) =$

Solve for x:

$6x + 3 = 6$

Solve for x: $\frac{2}{3} + \frac{x}{6} = \frac{3}{2}$

Solve for x: $\frac{2}{x} + \frac{1}{6} = \frac{3}{2}$

A student has grades of 70, 80 and 75 on three exams. The remaining exam is the final exam, and it is worth two exams. What grade must the student earn on the final exam to attain an average of 79?

Sales tax is 10%. If you purchase an item and the total charge (price plus tax) is $13.75, what was the price of the item?

You have 10 gallons of punch which is 60% fruit juice and 40% Seven-Up. How much fruit juice must you add to the punch to have a punch which is 80% fruit juice?

When Judy goes bowling, she rents shoes once for $4 and then pays $3 per game. How many games can she bowl for $10?

Chapter 15 - Geometry

About when did Euclid write "Elements"?

Euclid had 10 axioms: 5 geometric axioms, and 5 general axioms.

What does **congruent** mean? What does **similar** mean?

Example Theorems:

1. The sum of the angles of a triangle is 180 degrees
2. Of all rectangles with the same perimeter, the square has the largest area.
3. Of all rectangles with the same area, the square has the smallest perimeter

If you have 400 feet of fence, the largest rectangular area you could fence would be _____ square feet.

A rancher wants to enclose a rectangular area of 900 square meters. What's the smallest amount of fence he could use?

Chapter 17 – Trigonometry

$sin = \frac{opp}{hyp}$ $\quad s = \frac{o}{h}$

$\cos = \frac{adj}{hyp}$ $\quad c = \frac{a}{h}$

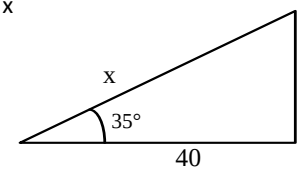
$\tan = \frac{opp}{adj}$ $\quad t = \frac{o}{a}$

SOH – CAH – TOA

Basic Steps

1. Label the sides
2. Choose a ratio
3. Write the equation (based on ratio)
4. Solve for X

Find the value of x



At a point 70 feet from the base of a building, you find that the angle between the horizontal and the line of sight to the top is 55°.

How high is the building?

To measure the width of a river, a person standing on one bank of a river spots a tall tree directly across the river. She then walks to another point 30 feet downstream. From that point, the angle between the river bank and the line of sight to the tall tree is 42°. The width of the river is (round off to the nearest foot)

If you put $3000 into an accout paying 12% annually, how much will you have after three years? Use the equation $\mathbf{y = A\,(1+r)^x}$ where:

A is the original amount,

r is the interest rate, and

x is the number of years,

y is the answer.

Kepler's Law is $\mathbf{T = .0005465\ D^{1.5}}$. The average distance from the sun to the planet Saturn is 1427 million meters (so D=1427). The number of earth years in one revolution of Venus around the sun is

For free fall, distance and time are related by: $s = 16t^2$.
When t = 10 seconds, s = _____ feet

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If an object is dropped and falls for 5 seconds, its average speed during those 5 seconds is:

If you travel 2000 miles in 4 hours, your average speed was _____ miles / hour

Chapter 19

Perspective Drawing – Putting 3D objects on a 2D canvas, striving toward realism.

All **horizontal lines** which are perpendicular to the screen must be drawn so as to go through the principal vanishing point.

Da Vinci: "No human inquiry can be called true science unless it proceeds through mathematical demonstrations"

Da Vinci: "Let no one who is not a mathematician read my works"

The formula for calculating Kinetic Energy is $\boldsymbol{E = \frac{1}{2}mv^2}$ where **E** is the kinetic energy (in Joules), **m** is mass (in kilograms), and **v** is velocity (in m/s). Calculate the Kinetic Energy of a car that weighs 1000 kilograms traveling at 30 m/s:

The formula for calculating Kinetic Energy is $\boldsymbol{E = \frac{1}{2}mv^2}$ where **E** is the kinetic energy (in Joules), **m** is mass (in kilograms), and **v** is velocity (in m/s).

If a person weighs 100kg, and has a kinetic energy of 1250 Joules, how fast are they moving (in m/s)?