

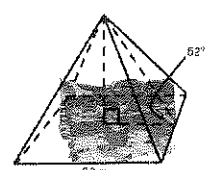
Key

Some Practice Problems

9.1-9.7

All but two of the pyramids built by the ancient Egyptians have faces inclined at 52° angles. Suppose an archaeologist discovers the ruins of a pyramid. Most of the pyramid has eroded, but she is able to determine that the length of a side of the square base is 82 m. How tall was the pyramid? Show all work. Round to the nearest meter.

Height = _____




$$\tan 52^\circ = \frac{h}{41}$$


$$52.5 \approx h$$

TEST 9.1-9.7

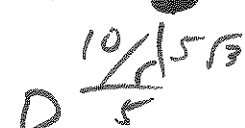
- Pythagorean Theorem (and its Converse)
- Finding the geometric mean of two numbers
- Geometric Mean Theorem
- Special Right Triangles
- Law of Sines/cosines
- Area of a Triangle
- Right Triangle Trig
- Be able to find Angles
- Application Problems (Angle of Elevation/Depression)

Be sure to STUDY YOUR QUIZZES!!!

a) Find $\tan B$ when $\cos B = \frac{8}{10}$

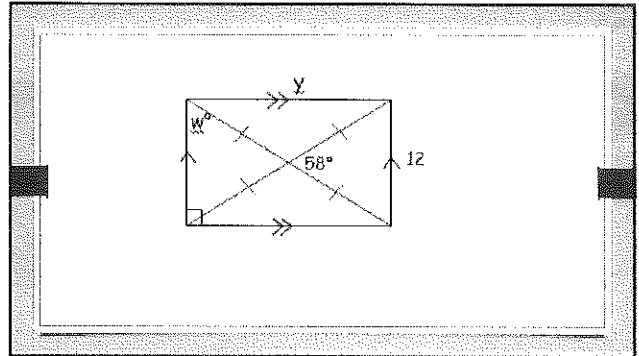
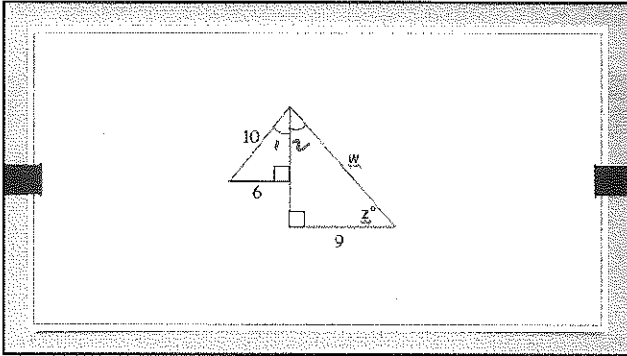


b) Find $\cos D$ when $\sin D = \frac{5\sqrt{3}}{10}$



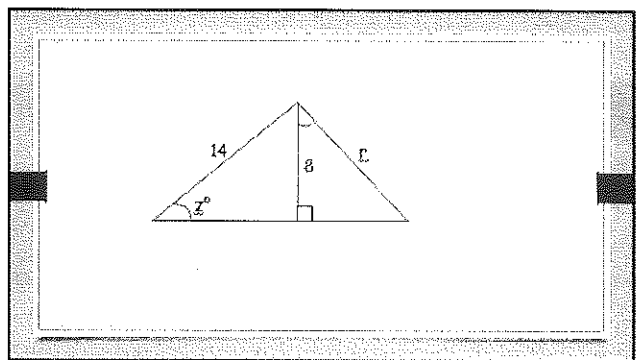
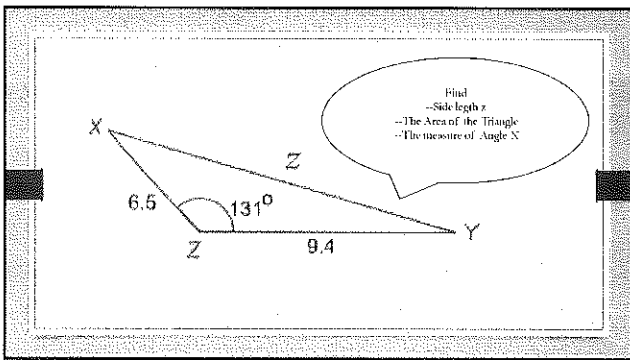
$$\tan B = \frac{6}{8} = \frac{3}{4}$$

$$\cos D = \frac{5}{10} = \frac{1}{2}$$



$\sin 37 = \frac{6}{10}$ OR $\frac{10}{6} = \frac{w}{9}$
 $m\angle 1 = m\angle 2 = 37^\circ$
 $\sin 37^\circ = \frac{9}{w}$
 $w = 15$

$w = 61^\circ$
~~61~~
 $\tan 61^\circ = \frac{y}{12}$
 $y \approx 21.6$



$z^2 = 6.5^2 + 9.4^2 - 2(6.5)(9.4)\cos 131$
 $z \approx 14.5$
 $A = \frac{1}{2}ab\sin C$
 $= \frac{1}{2}(6.5)(9.4)\sin 131$
 $A \approx 23.1$

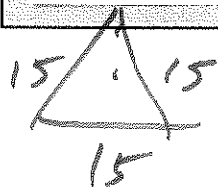
$\frac{\sin X}{9.4} = \frac{\sin 131}{14.5}$
 $X \approx 29^\circ$

$\sin z = \frac{8}{14}$
 $z \approx 35^\circ$
 $\cos 35 = \frac{8}{r}$
 $r \approx 9.7$

The perimeter of an equilateral triangle is 45 meters. Find the length of an altitude. Round to the thousandths.

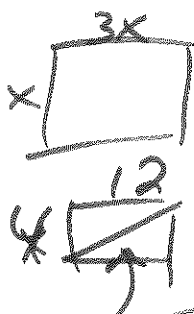
The perimeter of a rectangle is 32 feet. The length is three times the width. Find the length of a diagonal. Round to the thousandths.

You are a block away from a skyscraper that is 780 feet tall. Your friend is between the skyscraper and yourself. The angle of elevation from your position to the top of the skyscraper is 42° . The angle of elevation from your friend's position to the top of the skyscraper is 71° . To the nearest foot, how far are you from your friend?



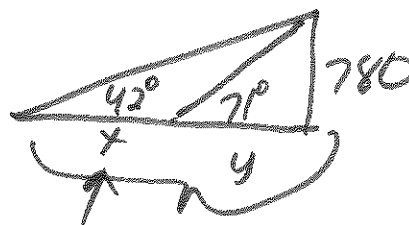
$$h = \frac{15\sqrt{3}}{2}$$

$$\approx 13.0$$



$$\sqrt{160} = 12.649$$

$$\approx 12.6$$



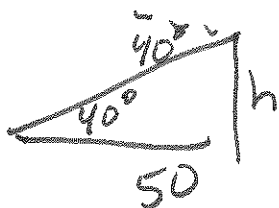
$$\tan 42^\circ = \frac{780}{x} \Rightarrow x \approx 866.3$$

$$\tan 71^\circ = \frac{780}{y} \Rightarrow y \approx 268.6$$

$$x - y \approx 597.7$$

A flagpole is 50 feet from a point on the ground. The angle of depression from the top of the flagpole to the same point on the ground is 40° . Calculate the height of the flagpole to the nearest foot.

The grade of a road is the $\frac{\text{rise}}{\text{run}}$, usually expressed as a percent. For example, a railway with a grade of 5% rises 5 ft. for every 100 ft. of horizontal distance. The world's steepest railway is the Katoomba Scenic Railway in the Blue Mountains of Australia. It has a grade of 127%. At what angle does this railway go up?



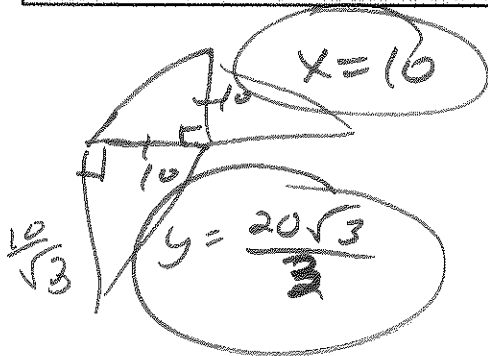
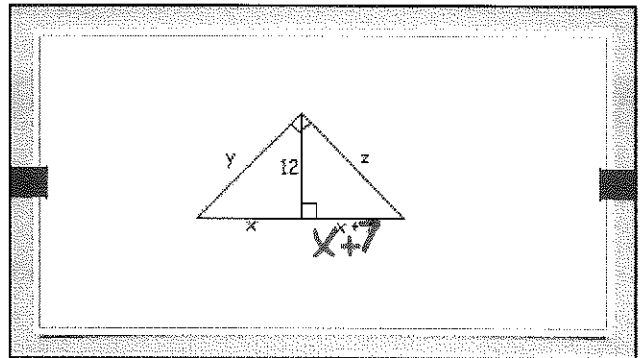
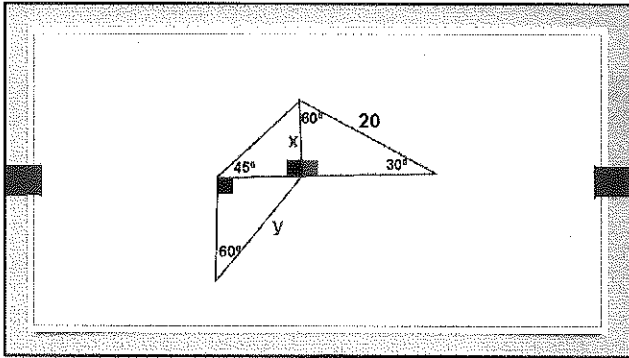
$$\tan 40^\circ = \frac{h}{50}$$

$$42 \text{ ft} \approx h$$



$$\tan \theta = \frac{122}{100}$$

$$\theta \approx 50.6 \text{ ft}$$



$$\frac{x}{12} = \frac{12}{x+7}$$

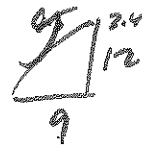
$$144 = x^2 + 7x$$

$$0 = x^2 + 7x - 144$$

$$(x+16)(x-9)$$

$$x = -16$$

$$x = 9$$



$$y = 15$$

$$z = 20$$

$$81 + 144 = 225$$

Name each type of triangle by its sides AND angles given the following side lengths!

$8\sqrt{3}, 16\sqrt{3}, 24$ $4\sqrt{2}, 4\sqrt{2}, 10$

q r

$$(8\sqrt{3})^2 + 24^2 = (16\sqrt{3})^2$$

$$768 = 768$$

scalene right

$$(4\sqrt{2})^2 + (4\sqrt{2})^2 = 10^2$$

$$32 + 32 = 100$$

$$64 \neq 100$$

Isos. obtuse