Mth 86   Lab 1   Name

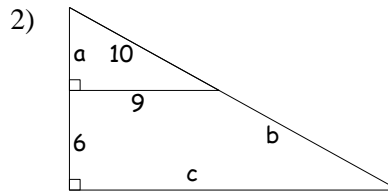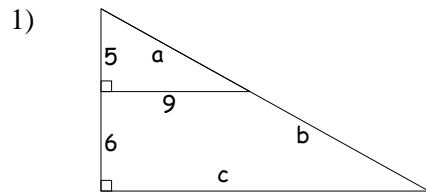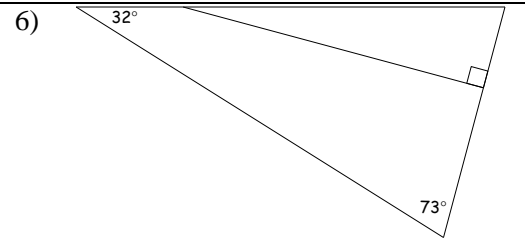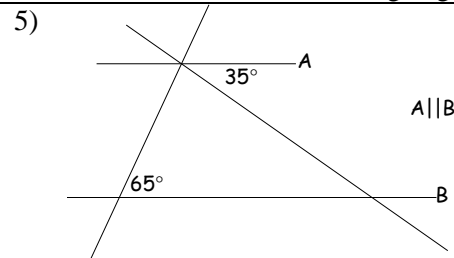Write in each dimension. Give answers as an exact integer or fraction where possible, otherwise, use a decimal to the nearest hundredth. These do <u>NOT</u> require Trigonometry
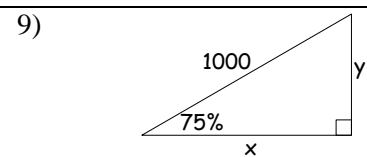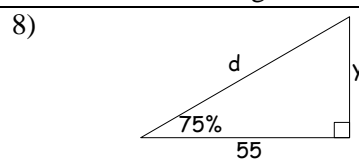
Use the Pythagorean Thm and Similar Triangles to solve for the missing dimensions.

1)

5 a
9
6   b
    c

2)

a 10
9
6   b
    c

3)

            45
    b   c
a
    26
          42

Find the missing angles

4)

13 b
15
   6   c a

5)

35° A
A||B
65°   B

6)

32°
73°

Find the missing sides

7)

d
146
75%
   x

8)

d
y
75%
55

9)
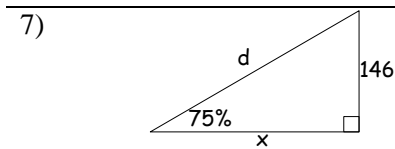
1000
y
75%
   x

Convert the following measures. Use the Box method and show every step.

10)   200 rpm → deg/sec

11)   1 rev/day → deg/sec

12)   200 deg every 1/4 sec → rpm

13) Road speed for a 24" tire @ 100 rpm

14) track speed for a 10 cm gear @ 1000 rpm

15) Jen's favorite bike is her 1963 Schwinn Fleet. It has a beefy drive train: the front gear has a diameter of 9 inches, and the back gear has a diameter of 3 inches (see picture at right). Additionally, her rear wheel is 28" in diameter. She's pedaling down the road at 60 RPM

How fast is she going in miles per hour? Round to mph.

16) Find the area (in acres) watered by this pivot irrigation system. The pivot arm (radius) is 540'. Route S-24 make a 105° turn. $43,560 \text{ ft}^2 = 1$ ac.
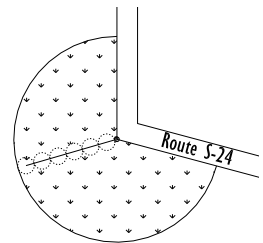
17) Find the total length of contact between the belt and the pulleys with the diameters shown. If the Big roller rotates at 1200 rpm what is the angular speed of the two rollers in deg/sec. What is the linear speed of the belt?
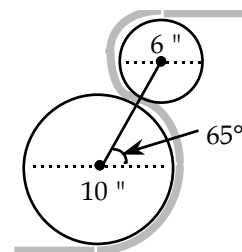
L= $\omega_{10"} =$ $\omega_{6"} =$ v =

18) A pointer is at position $\theta = -135°$. (a) Mark the initial position of the dial using →

(b) From that position, the dial is rotated $+1,520°$. How many rotations will the dial make?

(c) What is the location angle of the new position? Mark the final position with X