1. a) Write the *Pythagorean Theorem* for each triangle below.

    b) Find the length of the unknown side. Leave your answers to the nearest ***tenth*** if necessary.

    i)

    ii)

2. Will the following lengths form a right triangle? **_HINT:_** *Use the Pythagorean Theorem and check to see if the left side of the equation equals the right side of the equation.*

    a) 4, 6, 8   b) 14, 48, 50

3. Find the tangent of each angle to ***three*** decimal places.

    a) 46°   b) 21°   c) 18.5°

4. Find $\angle Q$ to the nearest ***tenth*** of a degree.

    a) $\sin Q = 0.738$ b) $\tan Q = 12.307$ c) $\cos Q = \dfrac{6}{7}$

5. Calculate $\tan D,\ \angle D,\ \tan E$ and $\angle E$. Round each angle measure to the nearest ***tenth***.

6. Calculate x to the nearest ***tenth***.

    a)

    b)

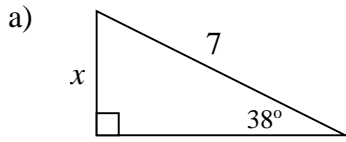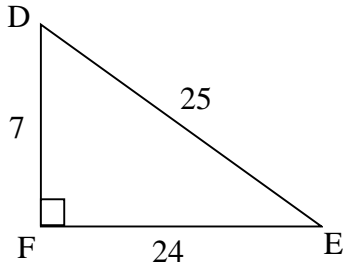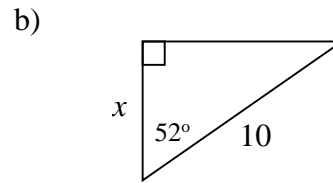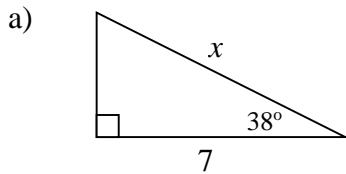7. Calculate $\sin D,\ \angle D,\ \sin E$ and $\angle E$. Round each angle measure to the nearest ***tenth***.

8. Calculate x to the nearest *tenth*.

a)

```
         7
  x     /
       /
 _____/
 38°
```

b)

```
      10
 _____
 |         /
 |        /
 52°    x
```
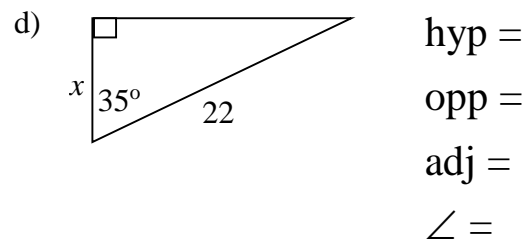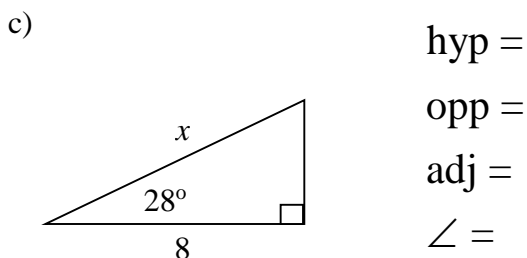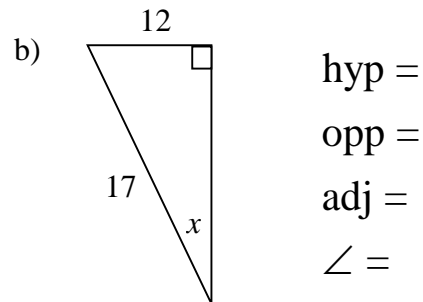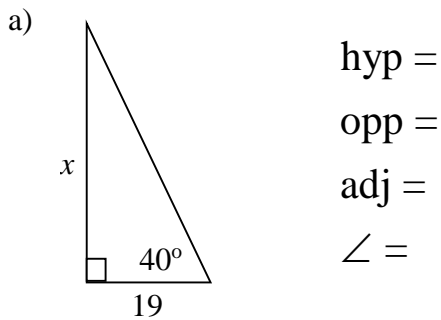
9. Calculate $\cos D$, $\angle D$, $\cos E$ and $\angle E$. Round each angle measure to the nearest *tenth*.

```
 D
 |\
 | \  25
 7|  \
 |   \
 F____\ E
   24
```

10. Calculate x to the nearest *tenth*.

a)

```
      x
     /
    /  38°
 __/_____
    7
```

b)

```
 |\
 |  \
 x   \
 |52° \
 |_____\
   10
```

11. Solve for x. Use **SOH/CAH/TOA** to help you find the missing value. Round each angle measure or side length to the nearest *tenth*.

a)

```
 |\
 | \
 x  \
 |   \
 |40° \
 |_____\
   19
```

hyp =

opp =

adj =

$\angle$ =

b)

```
    12
 _____
  \      |
   \     |
 17 \    |
     \  x
      \  |
       \ |
```

hyp =

opp =

adj =

$\angle$ =

c)

```
         /|
        / |
    x  /  |
      /   |
  28°/    |
 __/_____|
     8
```

hyp =

opp =

adj =

$\angle$ =

d)

```
 _____
 |              /
 x  35°        /
 |      22    /
 |_____ /
```

hyp =

opp =

adj =

$\angle$ =

12. Solve the triangle below. Round each answer to the nearest *tenth*.

C

11

48°

A   B
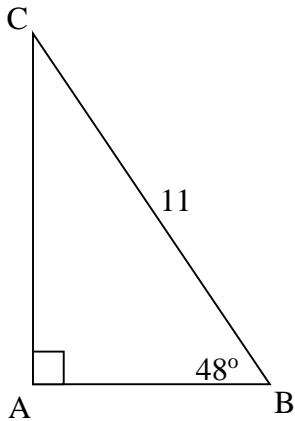
13. An 8 foot ladder makes an angle of 23° with the ground. How high up the wall does the ladder reach?
HINT: *Draw a diagram.*

14. When a 46 foot tall radio antenna casts a 20 foot long shadow, what is the angle of elevation of the sun?
HINT: *Draw a diagram.*