8.1A Tan Worksheet
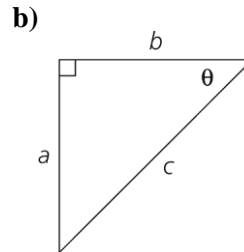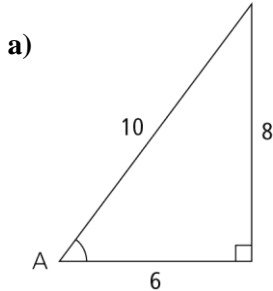
1. Identify the hypotenuse, opposite side, and adjacent side associated with each indicated angle.

a)

b)

2. Determine each tangent ratio, to four decimal places.

a) tan 30°   **b)**   tan 12°

c) tan 48°   **d)**   tan 80°

3. Determine the measure of each angle, to the nearest degree.

a) $\tan A = \dfrac{3}{5}$ **b)** $\tan B = 0.1584$

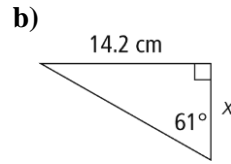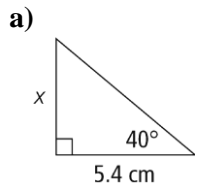**c)** $\tan C = 1.5400$ **d)** $\tan \theta = 9.5144$

4. Draw and label a right triangle to show each tangent ratio. Then, determine the measure of each angle, to the nearest degree.
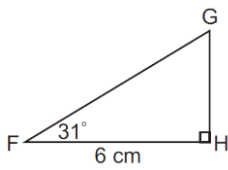
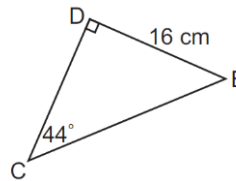**a)** $\tan D = \dfrac{1}{3}$ **b)** $\tan A = 1.75$

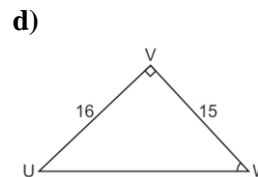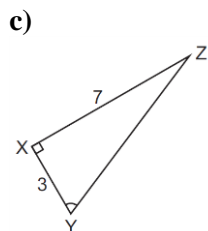**5.** Determine the measurement of the indicated side. Express your answer to the nearest tenth of a centimetre.

a)

x

40°

5.4 cm

b)
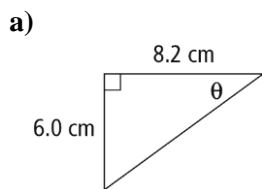
14.2 cm

61° x

c) Find side **f**.

G

31°

F

6 cm H

d) Find side **e**.

D

16 cm

E

44°

C

6. Determine the value of the indicated angle, to the nearest degree.

a)

8.2 cm

θ

6.0 cm

b)

24

15

A

c)

Z

7

X

3

Y

d)

V

16

15

U

W
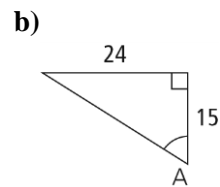
7. Mary wishes to determine the height of the tree in her yard. She measures the angle of elevation to the top of the tree to be 25° at a point 20 m from the base of the tree. How tall is the tree, to the nearest tenth of a metre?
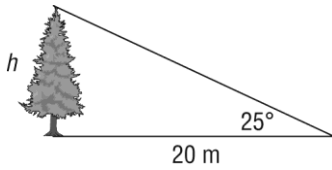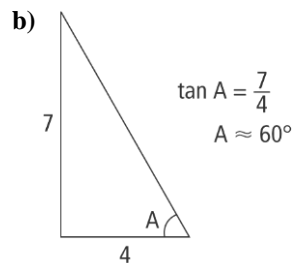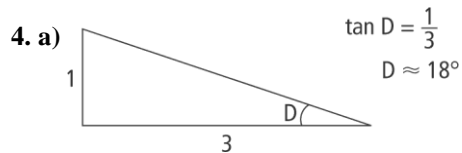

8. Matt is 1.65 m tall and his shadow is 1.43 m long. Determine the angle of elevation of the sun, to the nearest degree.
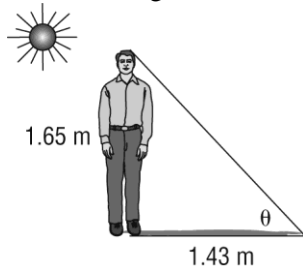
Answers:
1. a) 10 = hypotenuse, 8 = opposite, 6 = adjacent   **b)** c = hypotenuse, a = opposite, b = adjacent
2. a) 0.5774 **b)** 0.2126 **c)** 1.1106 **d)** 5.6713
3. a) 31° **b)** 9° **c)** 57° **d)** 84°

4. a)

$\tan D = \frac{1}{3}$

$D \approx 18°$

b)

$\tan A = \frac{7}{4}$

$A \approx 60°$

5. a) 4.5 cm **b)** 7.9 cm **c)** 3.6 cm **d)** 16.6 cm **6. a)** 36° **b)** 58° **c)** 67° **d)** 47°   **7.** 9.3 m   **8.** 49°