Practice TEST

1. tan 47° is 1.07236

2. cos 55° is 0.57357

3. sin 49° is 0.754709

4. If sin A = 0.8829, then ∠A is approximately

$A = 62°$

5. If cos A = 0.8290, then ∠A is approximately

$A = 34°$

6. A slide in a park has a vertical height of 1.5 m. The horizontal distance covered by the slide is 2 m. The length of the slide is
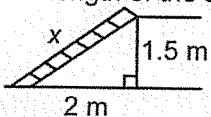
$x^2 = 2^2 + 1.5^2$
$x^2 = 4 + 2.25$
$x^2 = 6.25$
$x = 2.5$
∴ length is 2.5 m

7. A cat lying on the ground is 1.5 m away from his owner. The angle of elevation from the cat to his owner's head is 48°. How tall is his owner?
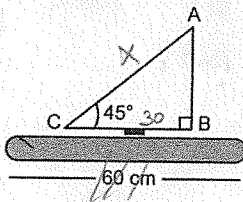

$\tan 48° = \frac{x}{1.5}$
$1.5 (\tan 48°) = x$
$1.7 = x$
∴ owner is 1.7 m tall

8. Thi's model boat has a base 60 cm long. The horizontal length of the sail is half the length of the base of the boat. ∠C is 45°. Which is the diagonal side of the sail?
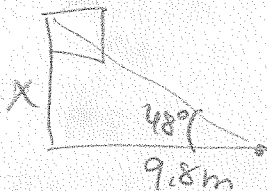

$\cos 45° = \frac{30}{x}$
$x \cos 45° = 30$
$x = \frac{30}{\cos 45°}$
$x = 42.4$
∴ diagonal is 42.4 cm long

9. From a point 9.8 m from the base of a flagpole, the angle of elevation to the top of the pole is 48°. What is the height of the flagpole?
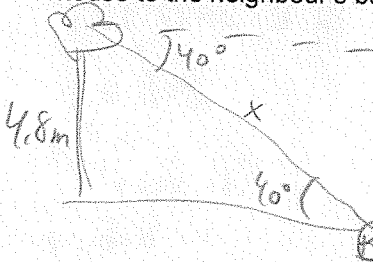

$\tan 48° = \frac{x}{9.8}$
$9.8 (\tan 48°) = x$
$10.9 = x$
∴ flagpole is 10.9 m tall.

10. Jan's tree house is 4.8 m above the ground. When he looks down at an angle of depression of 40°, he can see over the fence and into his neighbour's backyard. What is the diagonal distance from tree house to the neighbour's backyard?
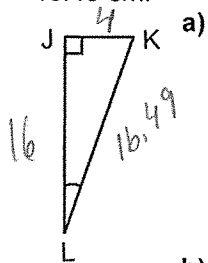

$\sin 40° = \frac{4.8}{x}$
$x (\sin 40°) = 4.8$
$x = \frac{4.8}{\sin 40°}$
$x = 7.5$
∴ diagonal distance is 7.5 m

14

11. In △JKL below, JK is 4 cm, JL is 16 cm, and KL is 16.49 cm.

J —4— K

16   16.49

L

a) Write the 3 trig ratios for angle L

$$\sin L = \frac{4}{16.49}$$

$$\cos L = \frac{16}{16.49}$$
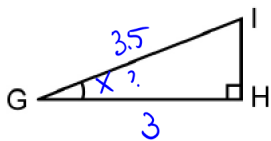
$$\tan L = \frac{4}{16}$$

b) Find angle L

$$L = \tan^{-1}\left(\frac{4}{16}\right)$$

$$L = 14°$$

12. In △GHI below, GI is 3.5 m and GH is 3m. Determine the angle ∠G to the nearest degree.
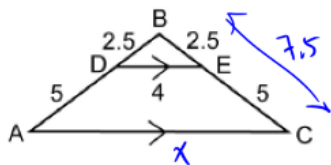
3.5
G x ?   H
3

$$\cos x = \frac{3}{3.5}$$

$$\cos x = 0.8571$$

$$x = \cos^{-1}(0.8571)$$

$$x \doteq 31°$$

13. Line segments AC and DE are parallel. Find the length of AC to the nearest tenth of a unit.

B
2.5 / 2.5 \ 7.5
D → E
5   4   5
A → C
x

similar △'s

$$\triangle ABC \sim \triangle DBE$$

$$\frac{AB}{DB} = \frac{BC}{BE} = \frac{AC}{DE}$$
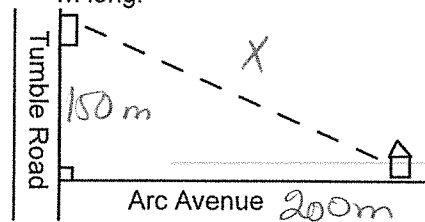
$$\frac{7.5}{2.5} = \frac{7.5}{2.5} = \frac{x}{4}$$

$$7.5(4) = 2.5x$$

$$30 = 2.5x$$

$$12 = x$$

∴ AC is 12 units

14. Beatriz lives on Arc Avenue, which is 200 m long. Her aunt's house is on Tumble Street, which is 150 m long.

Tumble Road
150 m   x
Arc Avenue 200m

a) Determine the distance that Beatriz travels if she goes along both streets from her house to her aunt's house.

$$150 + 200 = 350 \text{ m}$$

b) What is the distance that Beatriz travels if she takes a diagonal shortcut?

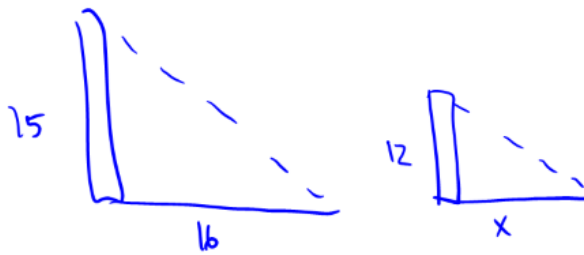$$150^2 + 200^2 = x^2$$

$$22500 + 40000 = x^2$$

$$62500 = x^2$$

$$250 = x$$

c) How much shorter is the shortcut?

by 100 m

15. The height of Melvin's house is 12 m. His friend, Matt, lives in a house that is 15 m tall. If Matt's house casts a shadow that is 16 m long, what is the length of the shadow cast by Melvin's house to the nearest tenth of a metre?

15
16

12
x

Similar △'s

Big △
Small △

$$\frac{15}{12} = \frac{16}{x}$$

$$15x = 16(12)$$

$$15x = 192$$

$$x = 12.8$$

∴ Melvin's house shadow is 12.8 m