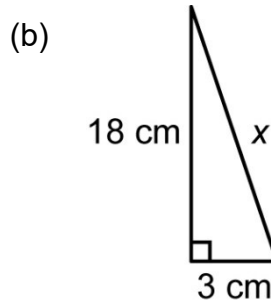
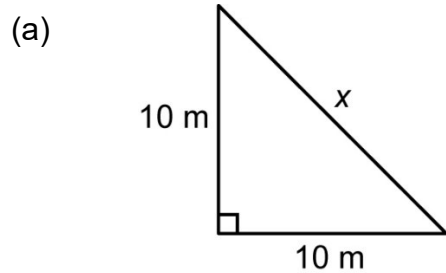


CHAPTER 2 REVIEW

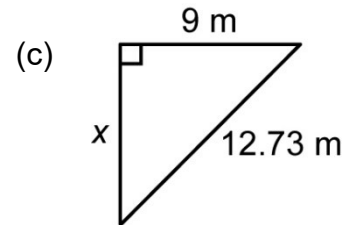
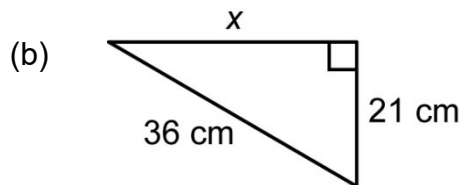
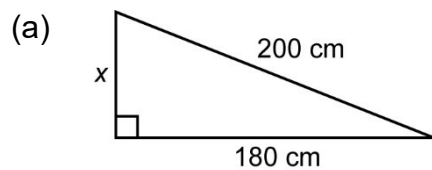
2.1 – PYTHAGOREAN THEOREM

FORMULA: $c^2 = a^2 + b^2$

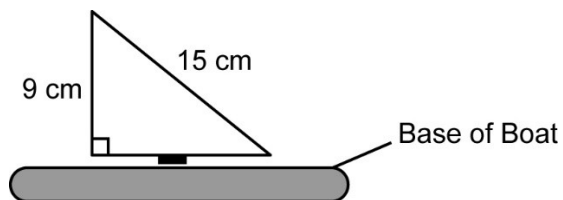
1. Calculate the length of the **hypotenuse** for each triangle. Express your answer to one decimal place



2. Calculate each missing side length. Express your answer to one decimal place

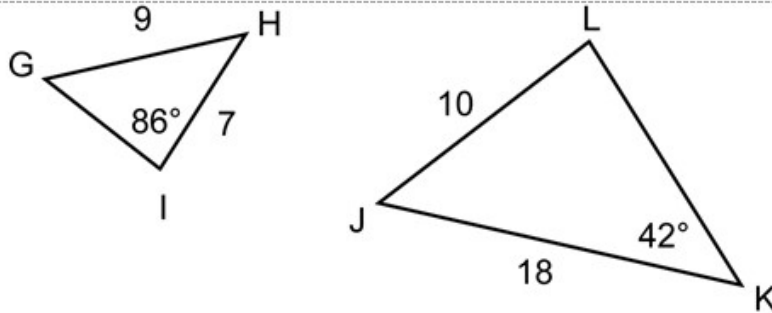


3. Chris is building a model sail boat for a school project. The **height** of the sail is **9 cm** and the length of the **diagonal** is **15 cm**. Calculate the **length of the base** of the boat if it is double the length of the base of the sail

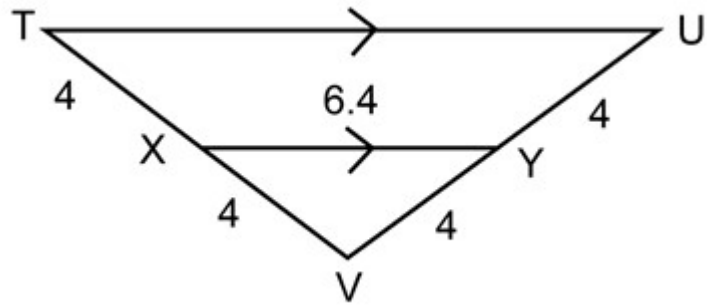


1.3 – SIMILAR TRIANGLES

1. Triangles GHI and JKL are similar. Solve for the **missing side** and **angle measures**



2. Side TU is parallel to side XY. $\triangle TUV$ is similar $\triangle XYV$. Solve for the length of side **TU**.



1.4 – SOLVING PROBLEMS USING SIMILAR TRIANGLES

1. James is 1.5 m tall. His younger brother is 0.75 m tall. If James' shadow is 2 m long, how long is his brother's shadow?

2. The shadow cast by a lunch box is 50 cm long. At the same time, the shadow cast by a juice box is 25 cm long. The juice box is 20 cm tall. What is the height of the lunch box?

2.3 – THE SINE and COSINE RATIOS

**** MAKE SURE THE CALCULATOR IS SET TO DEGREES MODE (DEG)**

FORMULAS: $\sin A = \frac{\text{OPPOSITE}}{\text{HYPOTENUSE}}$ $\cos A = \frac{\text{ADJACENT}}{\text{HYPOTENUSE}}$

1. Use a calculator to determine each value. Express your answer to four decimal places

(a) $\sin 65^\circ = \mathbf{0.9063}$ (b) $\sin 56^\circ = \underline{\hspace{2cm}}$ (c) $\sin 34^\circ = \underline{\hspace{2cm}}$

(d) $\cos 35^\circ = \mathbf{0.8191}$ (e) $\cos 26^\circ = \underline{\hspace{2cm}}$ (f) $\cos 74^\circ = \underline{\hspace{2cm}}$

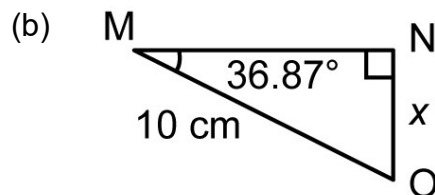
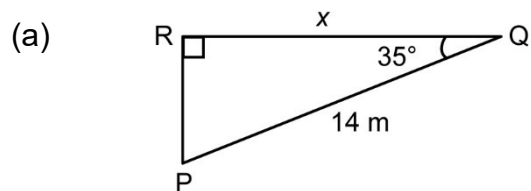
2. Use a calculator to determine the measure of $\angle A$. Express your answer to the nearest whole number

***** TO CALCULATE THE ANGLE, press 2ndF/SHIFT then the appropriate trigonometric ratio**

(a) $\sin A = 0.8192$ (b) $\sin A = 0.9962$ (c) $\sin A = 0.9744$
 $\angle A = \sin^{-1}(0.8192)$
 $\angle A = \mathbf{55^\circ}$

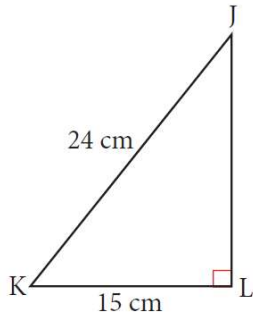
(d) $\cos A = 0.9063$ (e) $\cos A = 0.8480$ (f) $\cos A = 0.4384$
 $\angle A = \cos^{-1}(0.9063)$
 $\angle A = \mathbf{25^\circ}$

3. Determine the length of x . Express your answer to one decimal place

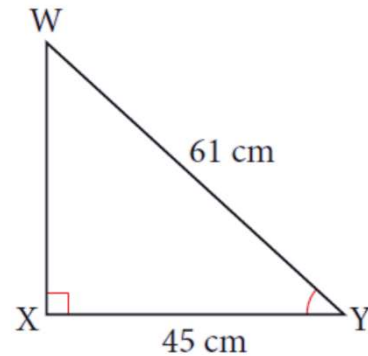


4. Determine the **angle measure** for the indicated angle

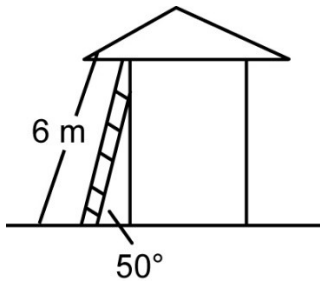
(a) $\angle J$



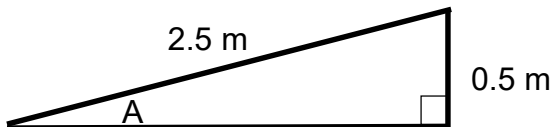
(b) $\angle Y$



5. Jacob leans a **6 m long ladder** against the side of a house. The ladder forms a **50°** angle with the ground. **How far** is the *foot* of the ladder from the side of the house? Express your answer to one decimal place



6. A wheelchair ramp is **2.5 m**. The top end of the ramp is **0.5 m** from the ground. **What angle (A)** does the ramp make with the ground? Express your answer to the nearest whole number



2.4 – THE TANGENT RATIO

FORMULA: $\tan A = \frac{\text{OPPOSITE}}{\text{ADJACENT}}$

*** **MAKE SURE THE CALCULATOR IS SET TO DEGREES MODE (DEG)**

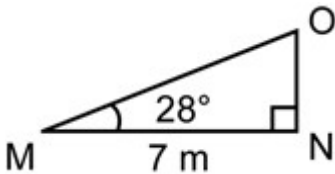
1. Use a calculator to determine each value. Express your answer to four decimal places

(a) $\tan 15^\circ = \mathbf{0.2679}$ (b) $\tan 36^\circ = \underline{\hspace{2cm}}$ (c) $\tan 64^\circ = \underline{\hspace{2cm}}$

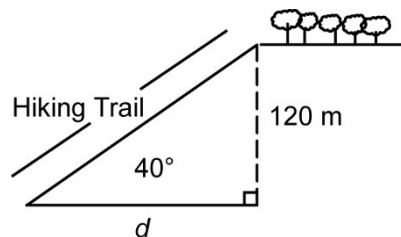
2. Use a calculator to determine angle $\angle A$. Express your answer to the nearest whole number

(a) $\tan A = 1.11$ (b) $\tan A = 0.70$ (c) $\tan A = 1.48$
 $\angle A = \tan^{-1}(1.11)$
 $\angle A = \mathbf{48^\circ}$

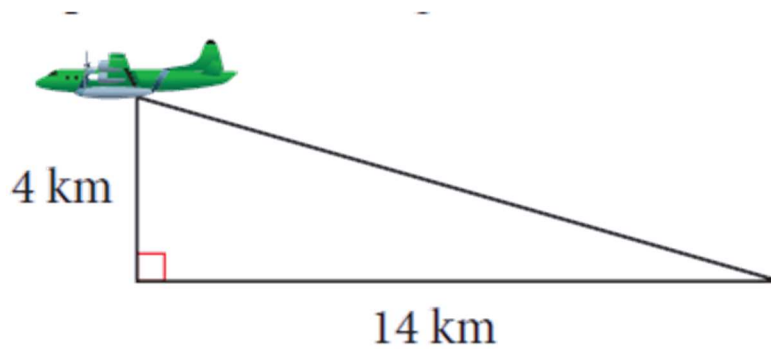
3. Determine the length of **ON**. Express your answer to one decimal place



4. Kai hikes up a trail that rises at an angle of 40° . The **vertical distance** from the top of the trail to the bottom is **120 m**. What is the **horizontal distance** covered by the trail? Express your answer to the nearest whole number

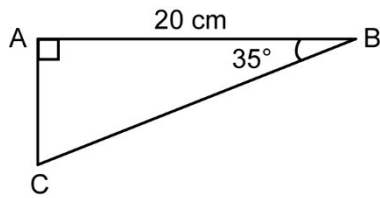


5. An airplane climbing at a constant angle relative to the ground has reached an altitude (height) of **4 km**. At this point, the plane has travelled a horizontal **distance of 14 km**. What is the **angle** at which the airplane is climbing?

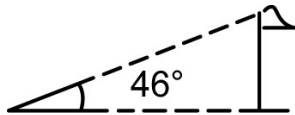


2.5 – SOLVE PROBLEMS USING RIGHT TRIANGLES

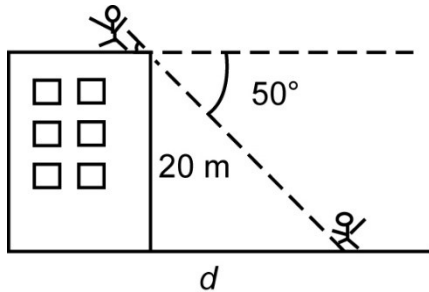
1. Calculate the length of **AC**. Express your answer to one decimal place



2. From a point **6.5 m** from the base of the school flagpole, the *angle of elevation* to the top of the flagpole is **46°**. What is the **height of the flagpole**? Express your answer to one decimal place



3. Ralph is on the roof of a building and his friend Jay is on the ground. Ralph can see Jay at an *angle of depression* of **50°**. The *vertical* height of the building is **20 m**. Calculate the **horizontal distance** from the base of the building to where Jay is standing. Express your answer to one decimal place



4. From a point **15 m** from the base of a picket fence, the *angle of elevation* to the top of the fence is **20°**. **How tall** is the fence? Sketch a diagram to help you with this question. Express your answer to one decimal place

5. Cheryl's tree house is **3 m** above the ground. Cheryl looks down at an *angle of depression* of **30°** and can see her pomeranian's doghouse. What is the **horizontal distance** from the doghouse to the treehouse? Sketch a diagram to help you with this question. Express your answer to one decimal place



SOLUTIONS

2.1

- (a) 14.1 m (b) 18.2 cm
- (a) 87.2 cm (b) 29.2 cm (c) 9.0 cm
- 24 cm

1.3

- $KL = 14$, $IG = 5$, $\angle H = 42^\circ$, $\angle G = 52^\circ$, $\angle L = 86^\circ$,
- $TU = 12.8$

1.4

- 1m
- 40 cm

2.3

- (b) 0.8290 (c) 0.5592 (e) 0.8988 (f) 0.2756
- (b) 85° (c) 77° (e) 32° (f) 64°
- (a) 11.5 m (b) 6.0 cm
- (a) 39° (b) 42°
- 3.9 m
- 12°

2.4

- (b) 0.7265 (c) 2.0503
- (b) 35° (c) 56°

3.7 m



4. 143 m

5. 16°

2.5

1. 14.0 cm

2. 6.7 m

3. 16.8 m

4. 5.5 m

5. 5.2 m

