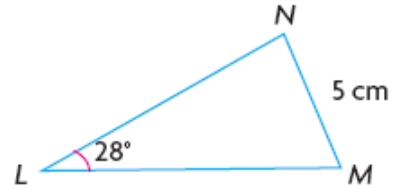


Practice Test - Trigonometry

PART A – MULTIPLE CHOICE

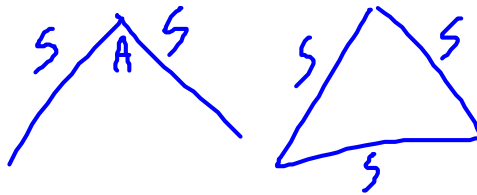
1. What method would you use to solve for angle N in the triangle below?

- A) Sine Law
- B) SohCahToa
- C) Cosine Law
- D) Not Possible - None of the above



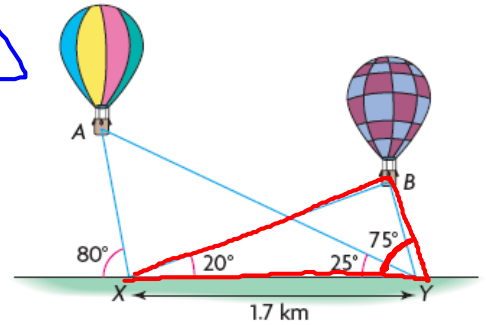
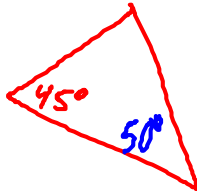
2. This method will allow you to solve for triangles where you have either SAS or SSS.

- A) Sine Law
- B) Cosine Law
- C) SohCahToa
- D) None of the above



3. In the diagram to the right, angle B is equal to

- A) 80°
- B) 85°
- C) 135°
- D) None of the above



4. The cosine law $a^2 = b^2 + c^2 - 2bc \cos A$ allows you to solve for the variables

- A) a and A
- B) b and c
- C) a and c
- D) A and c

$$c^2 = a^2 + b^2 - 2ab \cos C$$

5. Which of the following methods cannot be used to solve for side b in the diagram below?

- A) Sine Law
- B) Cosine Law
- C) SohCahToa
- D) None of the above



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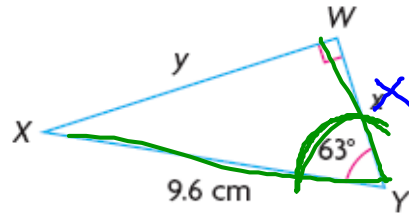
PART B – FULL SOLUTION

1. Solve for:

a) ~~x~~ to the nearest cm.

$$x = 4.4$$

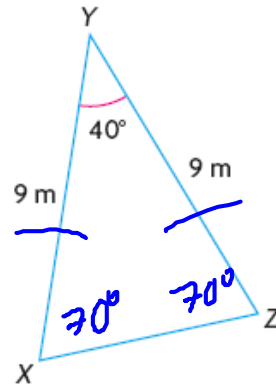
$$x = 4$$



b) y to the nearest m.

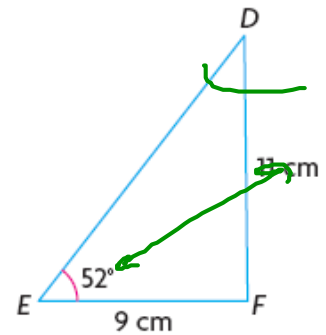
$$y = 6.2$$

$$y = 6$$



c) D to the nearest degree.

$$D = 40^\circ$$

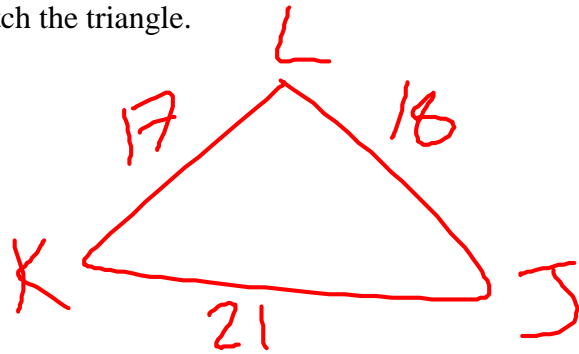


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2. Consider the triangle defined as follows:
 ΔJKL ; $j = 17.0$ cm, $k = 18.0$ cm, $l = 21.0$ cm

a) Sketch the triangle.

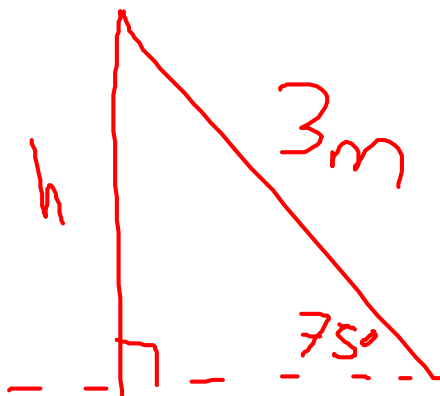


b) Determine all angles, to the nearest degree.

$$\cos L = \frac{17^2 + 18^2 - 21^2}{2 \times 17 \times 18}$$

$$L = 74^\circ \quad K = 55^\circ \quad J = 51^\circ$$

3. A 3 m ladder can be used safely only at an angle of 75° with the horizontal. How high, to the nearest metre, can the ladder reach?



$$h = 2.9 \text{ m}$$

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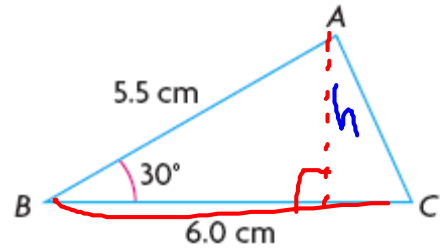
4. Calculate the area of the triangle to the nearest cm^2 .

$$A = \frac{bh}{2}$$

$$\sin 30^\circ = \frac{h}{5.5}$$

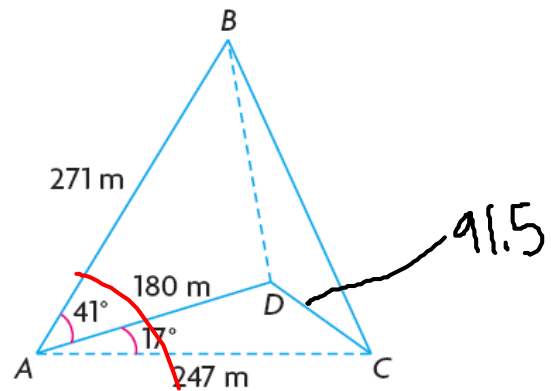
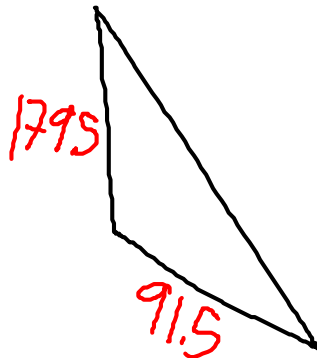
$$h = 2.75 \text{ cm}$$

$$A = \frac{6 \times 2.75}{2}$$
$$A = 9.25 \text{ cm}^2$$



5. Charmaine has planned a nature walk in the forest to visit four stations: A , B , C , and D . Use the sketch shown at the left to calculate the total length, to the nearest metre, of the nature trail, from A to B , B to C , C to D , and D back to A .

271
—
91.5
—
140



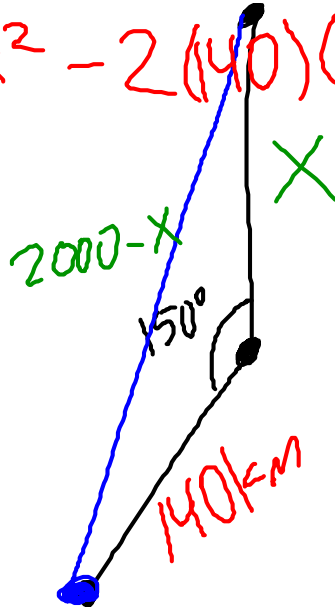
$$x^2 = 140^2 + 247^2 - 2(140)(247) \cos 17^\circ$$
$$\sqrt{x^2} = \sqrt{4374.4}$$
$$x = 91.5$$

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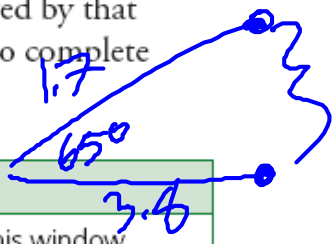
6. A plane leaves an aircraft carrier and flies due north at 500 km/h. The aircraft carrier proceeds 30° west of south at 35 km/h. If the plane has enough fuel for 4 h of flying, what is the maximum distance north it can fly, so that the fuel remaining will allow a safe return to the aircraft carrier?

$$(2000-x)^2 = 140^2 + x^2 - 2(140)(x) \times \cos 150^\circ$$



7. Match each method with a problem that can be solved by that method. Describe how each method could be used to complete a solution.

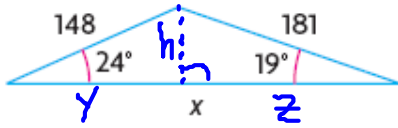
Method	Problems
Cosine law	Chris lives in a U-shaped building. From his window, he sights Bethany's window at a bearing of 328° and Josef's window at a bearing of 19°. Josef's window is 54 m from Bethany's and both windows are directly opposite each other. How far is each window from Chris's window?
Sine law	When the Sun is at an angle of elevation of 41°, Martina's treehouse casts a shadow that is 11.4 m long. Assuming that the ground is level, how tall is Martina's treehouse?
Primary trigonometric ratios	Ken walks 3.8 km west and then turns clockwise 65° before walking another 1.7 km. How far does Ken have to walk to get back to where he started?



Name: _____

Date: _____

6. Sven wants to determine the unknown side of the triangle shown at the left. Even though it is not a right triangle, describe how Sven could use primary trigonometric ratios to determine x .



9. A tree is growing vertically on a hillside that is inclined at an angle of 15° to the horizontal. The tree casts a shadow uphill that extends 7 m from the base of its trunk when the angle of elevation of the Sun is 57° . How tall is the tree to the nearest metre?

