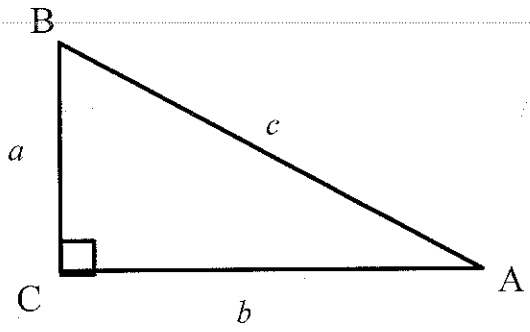
Math 10 Apprenticeship and Workplace
Finding sides

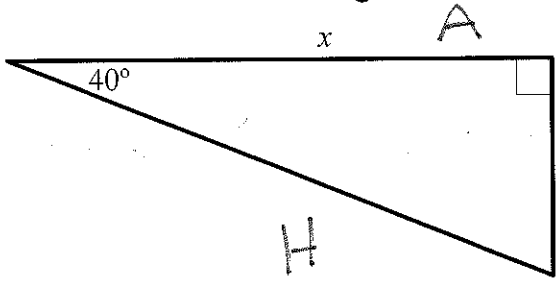
Name:_____

1. Write the fraction representing each trig ratio using the side lengths *a,b* and *c*



sin ∠A = $\frac{a}{c}$	cos ∠A = $\frac{b}{c}$	tan ∠A = $\frac{a}{b}$
sin ∠B = $\frac{b}{c}$	cos ∠B = $\frac{a}{c}$	tan ∠B = $\frac{b}{a}$

2. Determine the length of side x

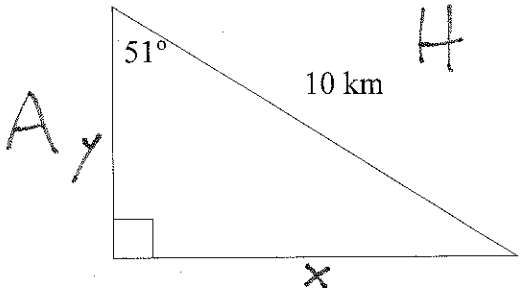


O

$\frac{\tan 40°}{1} = \frac{8}{x}$

9.53 cm

3. What is the perimeter of the following triangle?



O

$\frac{\sin 51}{1} = \frac{x}{10}$ $x = 7.77\text{km}$

$\frac{\cos 51}{1} = \frac{y}{10}$ $y = 6.29\text{km}$

P = 7.77 + 6.29 + 10 = 24.06 km

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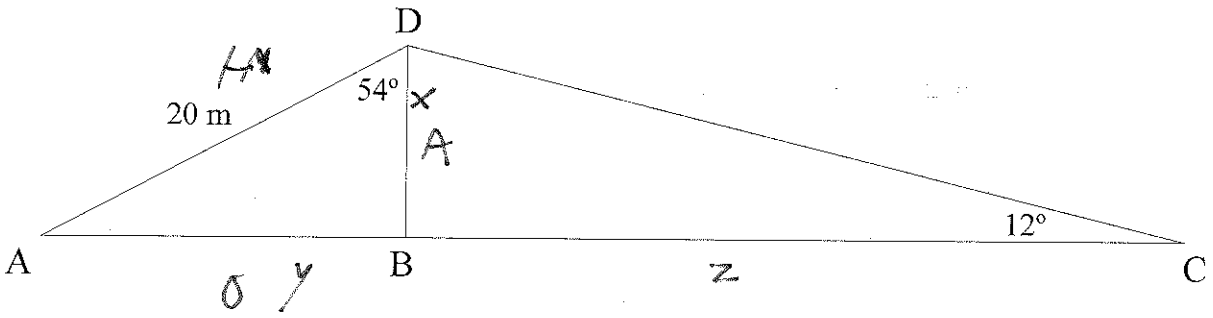
4. Determine the length from A to C

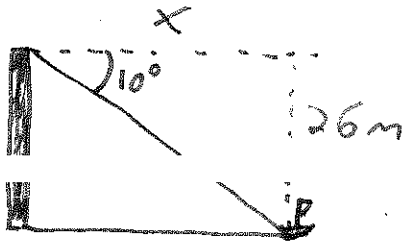


$\cos 54 = \frac{x}{20}$ $\sin 54 = \frac{y}{20}$ $\tan 12 = \frac{11.7557}{z}$

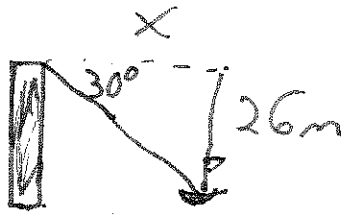
$x = 11.7557$ $y = 16.18$ $z = 55.31$

A to C is $y + z = 16.18 + 55.31 = 71.49$

5. The angle of depression from the top of a lighthouse to a ship heading straight towards it is 10°, 20 minutes later the angle of depression is 30°. How fast is the ship moving in km/hour? The lighthouse is 26 meters above sea level.



$\tan 10 = \frac{26}{x}$ $x = 147.45 m$



$\tan 30 = \frac{26}{x}$ $x = 45.033 m$

In 20 min the ship has gone $147.45 - 45.03 = 102.42 m$

In 1 hr it would go $3 \times 102.42 m = 307.26 m = 0.31 km$

So the boat is going 0.31 km/hr