For hwk:

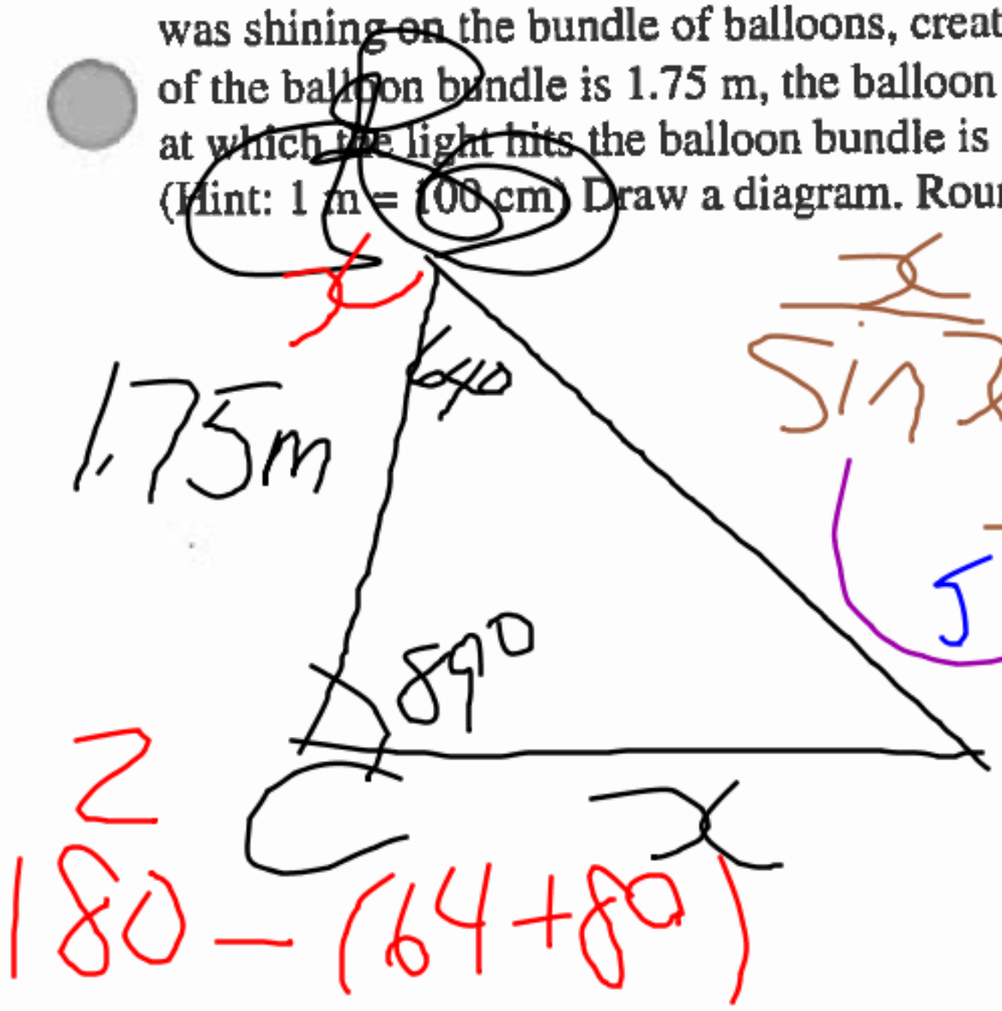
Cosine law #5

Sine law 1—6 word probs

∴ the length of the shadow is 3.5m or 350 cm

Sine Law Probs

5. At a birthday party, one large bundle of balloons was set up in the middle of the room. A light was shining on the bundle of balloons, creating a shadow. How long would the shadow be if the height of the balloon bundle is 1.75 m, the balloon bundle stands at an angle of 89° to the floor, and the angle at which the light hits the balloon bundle is at 64°? How long would the shadow be in centimetres? (Hint: 1 m = 100 cm) Draw a diagram. Round your answer to the nearest tenth.



$\frac{x}{\sin x} = \frac{y}{\sin y}$

$\frac{1.75}{\sin 64^\circ} = \frac{x}{\sin 27^\circ}$

$\angle y = 27^\circ$ $y = 1.75\text{m}$

$\angle z = 89^\circ$ $\angle x = 64^\circ$

$x = \frac{1.75 \sin 64^\circ}{\sin 27^\circ}$

$x = 3.46\text{m}$

$x = 3.5$

6. Joe and his friends decided to go out in the back yard one evening to light some fireworks. Joe's Grandma provided the fireworks. She told Joe that she had been saving these bottle rockets ever since her childhood. Unfortunately, all the fireworks were outdated, therefore all of them were in poor condition. Grandma realized that all the fireworks went up in the air for about 4 m at an angle of 45° and descended 6.5 m from the highest point to the ground. She wants to know how far the rocket landed from where it had been launched. Draw a diagram. Round your answer to the nearest tenth of a metre.

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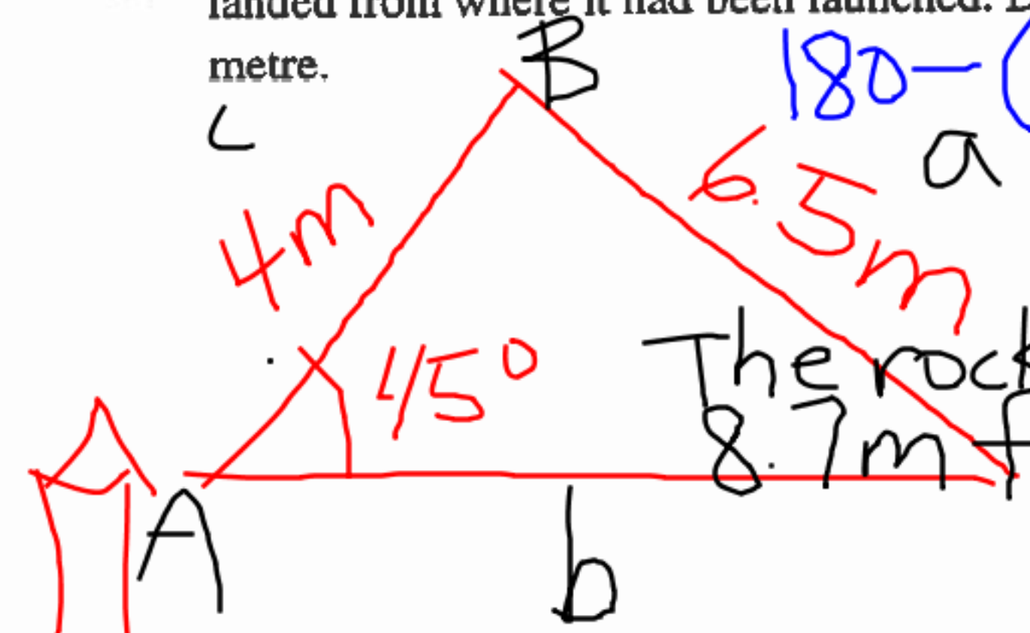


$180-(45+25.8)$

$a =$

The rocket lands 8.7m from the launch.

$\frac{6.5\sin C}{6.5} < \frac{4\sin 45}{6.5}$

$\sin C = 0.4351$

$\angle C = 25.8$

$\angle A = 45^\circ \quad a = 6.5m$

$\angle B = 109.2 \quad b =$

$\angle C = 25.8 \quad c = 4m$

$\frac{c}{\sin C} = \frac{a}{\sin A}$

$\frac{\sin C}{c} = \frac{\sin A}{a}$

$\frac{\sin C}{4} \times \frac{\sin 45}{6.5}$

$\frac{b}{\sin B} = \frac{a}{\sin A}$

$\frac{b}{\sin 109.2} = \frac{6.5}{\sin 45}$

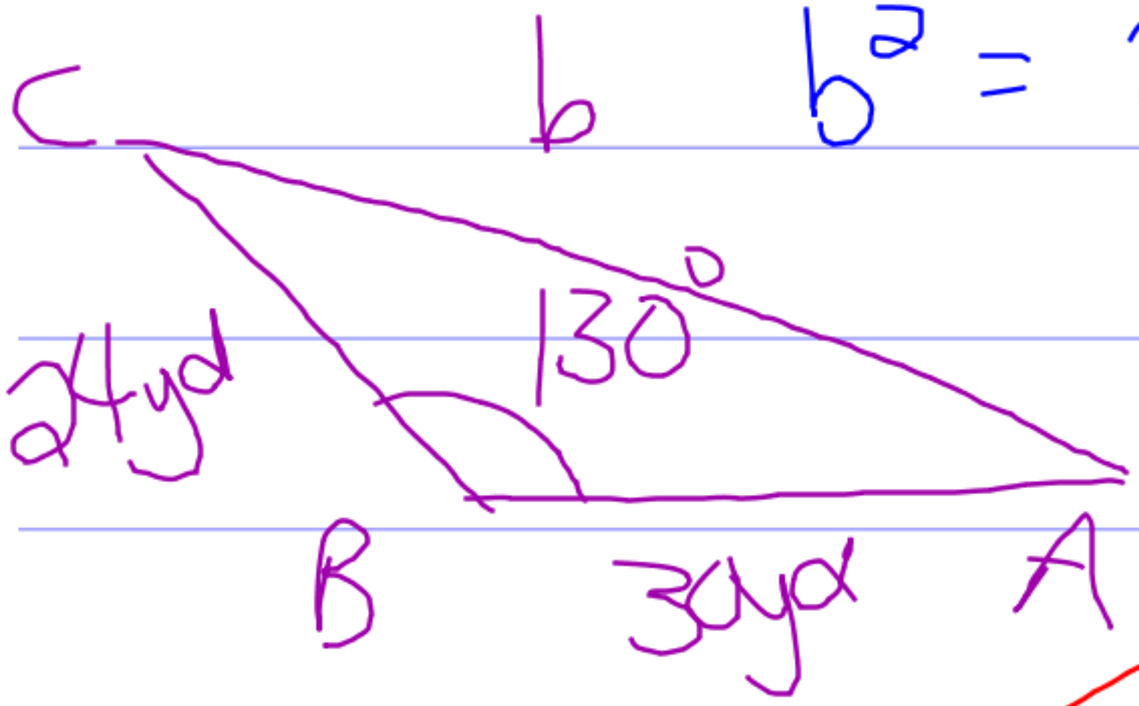
$b\sin 45 = 6.5\sin 109.2$

$\frac{b\sin 45}{\sin 45} = \frac{6.5\sin 109.2}{\sin 45}$

$b = 8.68$

1) Cosine Law Notes

$$b^2 = a^2 + c^2 - 2ac(\cos B$$



$$b^2 = 24^2 + 30^2 - 2(24)(30)(\cos$$

$$b^2 = 576 + 900 - 1440(-0.6428)$$

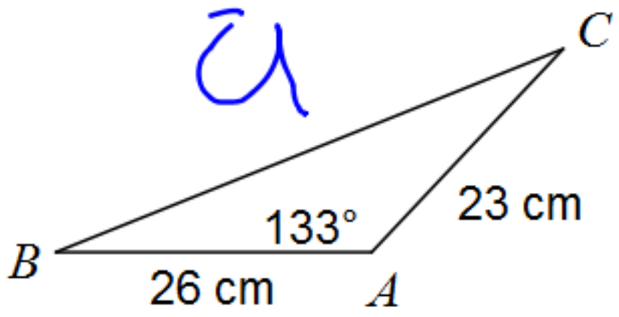
$$b^2 = 1476 + 925.6$$

$$\sqrt{b^2} = \sqrt{2401.6}$$

$$b = 49 \text{ yd}$$

Find each measurement indicated. Round your answers to the nearest tenth.

3) Find BC



$a^2 = b^2 + c^2 - 2bc(\cos A)$

$a^2 = (23)^2 + (26)^2 - 2(23)(26)(\cos 133)$

$a^2 = 529 + 676 - 1196(-0.6810)$

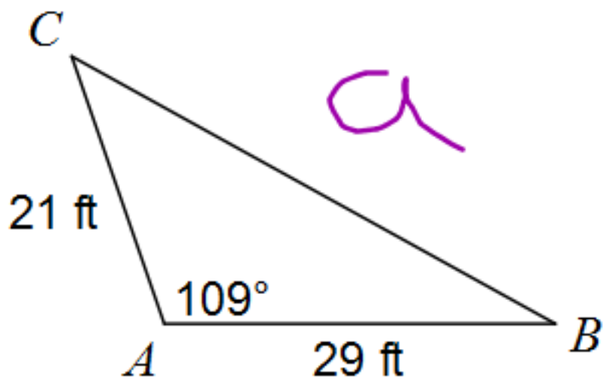
$a^2 = 1205 + 815.7$

$a^2 = 2020.7$

$a = 45 \text{ cm}$

Find each measurement indicated. Round your answers to the nearest tenth.

4) Find BC



$a^2 = b^2 + c^2 - 2bc(\cos A)$

$a^2 = (21)^2 + (29)^2 - 2(21)(29)(\cos 109^\circ)$

$a^2 = 1678.1$

$a = 40.9$

41.1