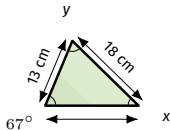


# Push Tasks — Answers



Find  $x$  with the Sine Rule, then use the angle sum of a triangle to find  $y$ . Give both to 1 d.p.

1.



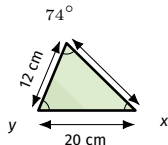
**Solution**

$$\sin x = \frac{13 \sin 67^\circ}{18} = 0.665$$

$$x = 41.7^\circ$$

$$y = 180^\circ - 67^\circ - x = 71.3^\circ$$

2.



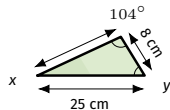
**Solution**

$$\sin x = \frac{12 \sin 74^\circ}{20} = 0.577$$

$$x = 35.2^\circ$$

$$y = 180^\circ - 74^\circ - x = 70.8^\circ$$

3.



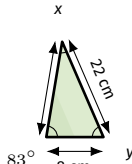
**Solution**

$$\sin x = \frac{8 \sin 104^\circ}{25} = 0.310$$

$$x = 18.1^\circ$$

$$y = 180^\circ - 104^\circ - x = 57.9^\circ$$

4.



**Solution**

$$\sin x = \frac{8 \sin 83^\circ}{22} = 0.361$$

$$x = 21.2^\circ$$

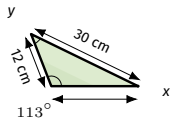
$$y = 180^\circ - 83^\circ - x = 75.8^\circ$$

# Push Tasks — Answers



For each triangle, find  $x$  and  $y$ . Keep the unrounded value of  $x$  when calculating  $y = 180^\circ - (\text{known angle}) - x$ .

5.



**Solution**

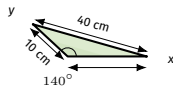
$$\sin x = \frac{12 \sin 113^\circ}{30} =$$

$$0.368$$

$$x = 21.6^\circ$$

$$y = 180^\circ - 113^\circ - x = 45.4^\circ$$

6.



**Solution**

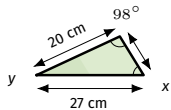
$$\sin x = \frac{10 \sin 140^\circ}{40} =$$

$$0.161$$

$$x = 9.2^\circ$$

$$y = 180^\circ - 140^\circ - x = 30.8^\circ$$

7.



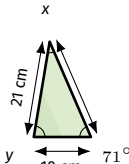
**Solution**

$$\sin x = \frac{20 \sin 98^\circ}{27} = 0.734$$

$$x = 47.2^\circ$$

$$y = 180^\circ - 98^\circ - x = 34.8^\circ$$

8.



**Solution**

$$\sin x = \frac{10 \sin 71^\circ}{21} = 0.450$$

$$x = 26.8^\circ$$

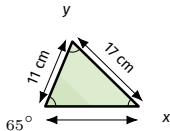
$$y = 180^\circ - 71^\circ - x = 82.2^\circ$$

# Push Tasks — Answers



For each triangle, find  $x$  and  $y$ , then justify why  $x$  is reasonable by comparing the two relevant opposite sides.

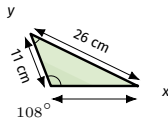
9.



**Solution**

$$\sin x = \frac{11 \sin 65^\circ}{17} = 0.586$$
$$x = 35.9^\circ, y = 79.1^\circ$$
$$x < 65^\circ \text{ since } 11 < 17.$$

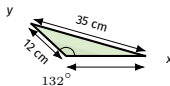
10.



**Solution**

$$\sin x = \frac{11 \sin 108^\circ}{26} = 0.402$$
$$x = 23.7^\circ, y = 48.3^\circ$$
$$x < 108^\circ \text{ since } 11 < 26.$$

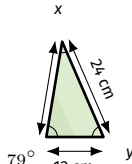
11.



**Solution**

$$\sin x = \frac{12 \sin 132^\circ}{35} = 0.255$$
$$x = 14.8^\circ, y = 33.2^\circ$$
$$x < 132^\circ \text{ since } 12 < 35.$$

12.



**Solution**

$$\sin x = \frac{12 \sin 79^\circ}{24} = 0.491$$
$$x = 29.4^\circ, y = 71.6^\circ$$
$$x < 79^\circ \text{ since } 12 < 24.$$