

**10.7 Trigonometric identities****HSG.SRT.C.8**

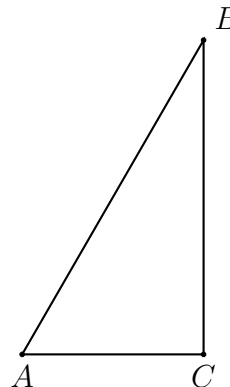
1. Given right  $\triangle ABC$  with  $AC = 5$ ,  $BC = 5\sqrt{3}$ ,  $AB = 10$ ,  $m\angle C = 90^\circ$ . Express each trig ratio as a fraction, then as a decimal to the nearest thousandth. (1a is an example)

(a)  $\sin A =$

(b)  $\cos A =$

(c)  $\sin B =$

(d)  $m\angle A =$



2. Right triangle  $\triangle ABC$  is shown with base  $AC = 6$  and hypotenuse  $AB = 10$  as marked.

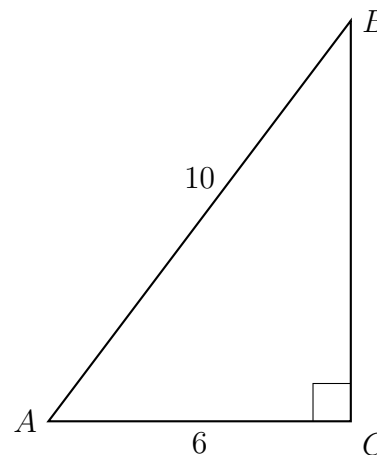
(a) Write down  $\cos A$ .

(b) Find the length of side  $BC$ .

(c) Write down  $\tan A$ .

(d) Write down  $\sin A$ .

(e) Find the angle measures of  $\angle A$  and  $\angle B$ .



3. Are the lines parallel, perpendicular, or neither? Justify your answer. (you must use the values of the slopes in your justification)

$y = 4x + 1$

$y = \frac{1}{4}x - 4$

4. Given  $P(4, 7)$  and  $Q(5, 0)$ , find the length of  $\overline{PQ}$ , expressed as a simplified radical.

Use:  $l = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

5. A translation  $T_{x,y}$  maps  $A(-1, 12) \rightarrow A'(5, -2)$ .

(a) Write down the translation.

(b) Apply the same translation to  $B(-3, 8)$ .

6. In the diagram below,  $\overline{PQ}$  has endpoints with coordinates  $P(-2, 5)$  and  $Q(4, -1)$ . Find the equation of the perpendicular bisector of  $\overline{PQ}$  and plot it on the grid.

