

Find the reference angle.

1. $150^\circ$  $30^\circ$	2. $210^\circ$  $30^\circ$	3. $-120^\circ$  $60^\circ$	4. $320^\circ$  $40^\circ$
5. $135^\circ$  $45^\circ$	6. $-200^\circ$  $20^\circ$	7. $100^\circ$  $80^\circ$	8. $290^\circ$  $70^\circ$

Use the given point on the terminal side of the angle  $\theta$  to find the trigonometric function indicated.

9. $\cos \theta = -\frac{8}{17}$  $(-8)^2 + (-15)^2 = c^2$ $64 + 225 = c^2$ $17 = c$	10. $\sin \theta = \frac{\sqrt{11}}{6}$  $(-5)^2 + (\sqrt{11})^2 = c^2$ $25 + 11 = c^2$ $6 = c$
---	--

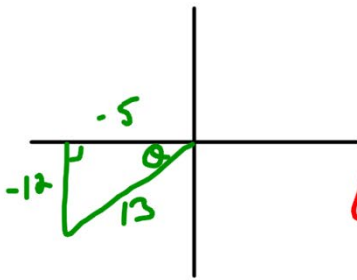
Draw the reference triangle. Find the EXACT value of the trig ratio for  $\theta$ .

11. $\sin \theta$ for $(6, 8)$  $6^2 + 8^2 = c^2$ $36 + 64 = c^2$ $10 = c$ $\sin \theta = \frac{8}{10} = \frac{4}{5}$	12. $\cos \theta$ for $(\sqrt{3}, -1)$  $\sqrt{3}^2 + 1^2 = c^2$ $3 + 1 = c^2$ $2 = c$ $\cos \theta = \frac{\sqrt{3}}{2}$
13. $\cos \theta$ for $(-3, -4)$  $(-3)^2 + (-4)^2 = c^2$ $9 + 16 = c^2$ $5 = c$ $\cos \theta = -\frac{3}{5}$	14. $\sin \theta$ for $(-12, 5)$  $(-12)^2 + 5^2 = c^2$ $144 + 25 = c^2$ $13 = c$ $\sin \theta = \frac{5}{13}$

Draw the reference triangle. Find the EXACT value of the trig ratio for  $\theta$ .

15. Given  $\tan \theta = \frac{12}{5}$  in quadrant III.

Find  $\sin \theta$

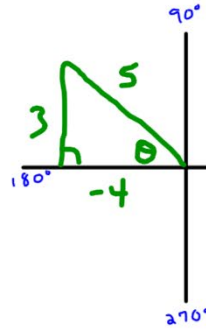


$$\begin{aligned} (-5)^2 + (-12)^2 &= c^2 \\ 25 + 144 &= c^2 \\ 13 &= c \end{aligned}$$

$$\sin \theta = -\frac{12}{13}$$

16. Given  $\cos \theta = -\frac{4}{5}$  where  $90^\circ < \theta < 180^\circ$ .

Find  $\tan \theta$

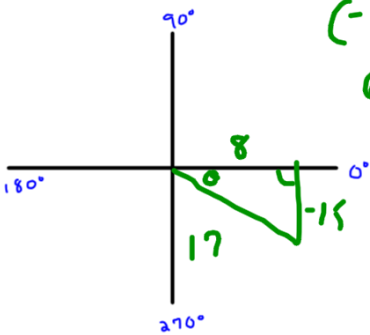


$$\begin{aligned} (-4)^2 + b^2 &= 5^2 \\ 16 + b^2 &= 25 \\ b &= 3 \end{aligned}$$

$$\tan \theta = -\frac{3}{4}$$

17. Given  $\tan \theta = \frac{-15}{8}$  where  $270^\circ < \theta < 360^\circ$

Find  $\cos \theta$

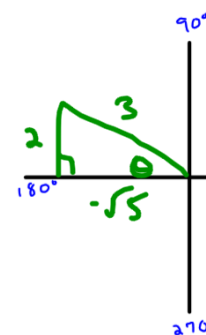


$$\begin{aligned} (-8)^2 + (-15)^2 &= c^2 \\ 64 + 225 &= c^2 \\ 17 &= c \end{aligned}$$

$$\cos \theta = \frac{8}{17}$$

18. Given  $\cos \theta = -\frac{\sqrt{5}}{3}$  in quadrant II

Find  $\sin \theta$

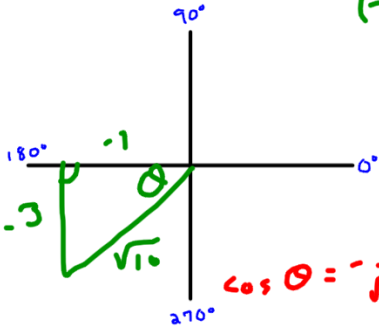


$$\begin{aligned} (-\sqrt{5})^2 + b^2 &= 3^2 \\ 5 + b^2 &= 9 \\ b &= 2 \end{aligned}$$

$$\sin \theta = \frac{2}{3}$$

19. Given  $\tan \theta = 3$  where  $180^\circ < \theta < 270^\circ$

Find  $\cos \theta$



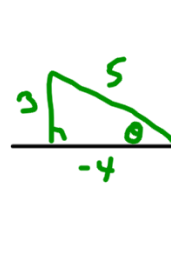
$$\begin{aligned} (-1)^2 + (-3)^2 &= c^2 \\ 1 + 9 &= c^2 \\ c &= \sqrt{10} \end{aligned}$$

$$\cos \theta = \frac{-1}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = -\frac{\sqrt{10}}{10}$$

$$\cos \theta = -\frac{\sqrt{10}}{10}$$

20. Given  $\sin \theta = \frac{3}{5}$  in quadrant II

Find  $\tan \theta$



$$\begin{aligned} 3^2 + b^2 &= 5^2 \\ 9 + b^2 &= 25 \\ b &= 4 \end{aligned}$$

$$\tan \theta = \frac{3}{-4}$$

Solve the following.

27.  $x^2 - 3x + 20 = 9x$

$$\begin{aligned} x^2 - 12x + 20 &= 0 \\ (x-2)(x-10) &= 0 \end{aligned}$$

$$x = 2, 10$$

28.  $20 = 3(b)^5$

$$\sqrt[5]{\frac{20}{3}} = \sqrt[5]{b^5}$$

$$b = 1.44$$

29.  $20 = 5(2)^t$

$$\begin{aligned} 4 &= 2^t \\ \log_2 4 &= \log_2 2^t \end{aligned}$$

$$2 = t$$