Name: Answer key (1)

Period: _____

5.1-5.2 Review

Precalculus

Find the missing coordinate of P. Point P lies on the unit circle. $x^2+y^2=1$

1. $P\left(\frac{1}{5}, -\right)$, Quadrant IV

$(x,-y)$

$\left(\frac{1}{5}\right)^2+y^2=1$

$\frac{1}{25}+y^2=\frac{25}{25}$

$-\frac{1}{25}\quad -\frac{1}{25}$

$\sqrt{y^2}=\sqrt{\frac{24}{25}}=\boxed{\frac{-2\sqrt{6}}{5}}$

2. $P\left(-, \frac{\sqrt{3}}{5}\right)$, Quadrant I

$(-x,y)$

$x^2+\left(\frac{\sqrt{3}}{5}\right)^2=1$

$x^2+\frac{3}{25}=\frac{25}{25}$

$-\frac{3}{25}\quad -\frac{3}{25}$

$\sqrt{x^2}=\sqrt{\frac{22}{25}}=\boxed{\frac{\sqrt{22}}{5}}$

3. $P\left(-, \frac{-\sqrt{2}}{3}\right)$, Quadrant IV

$(x,-y)$

$x^2+\left(\frac{-\sqrt{2}}{3}\right)^2=1$

$x^2+\frac{2}{9}=\frac{9}{9}$

$-\frac{2}{9}\quad -\frac{2}{9}$

$\sqrt{x^2}=\sqrt{\frac{7}{9}}$

$x=\boxed{\frac{\sqrt{7}}{3}}$

4. $P\left(-\frac{3}{5}, -\right)$, Quadrant III

$(-x,-y)$

$\left(-\frac{3}{5}\right)^2+y^2=1$

$\frac{9}{25}+y^2=\frac{25}{25}$

$-\frac{9}{25}\quad -\frac{9}{25}$

$\sqrt{y^2}=\sqrt{\frac{16}{25}}=\boxed{-\frac{4}{5}}$

Find the terminal point P(x,y) on the unit circle determined by the given value t.

5. $t=-\frac{\pi}{3}$

$-\frac{\pi}{3}+\frac{2\pi\cdot 3}{1\cdot 3}$

$-\frac{\pi}{3}+\frac{6\pi}{3}=\frac{5\pi}{3}$

$\boxed{\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)}$

6. $t=6\pi$

$6\pi-2\pi=4\pi$

$-2\pi\quad\quad -2\pi$

2π

$\boxed{(1,0)}$

7. $\frac{13\pi}{6}+\frac{2\pi\cdot 6}{1\cdot 6}$

$-\frac{13\pi}{6}+\frac{12\pi}{6}=-\frac{\pi}{6}+\frac{12\pi}{6}$

$=\frac{11\pi}{6}$

$\boxed{\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)}$

8. $t=-\frac{3\pi}{2}+\frac{2\pi\cdot 2}{1\cdot 2}$

$-\frac{3}{2}\pi+\frac{4\pi}{2}=\frac{\pi}{2}$

$\boxed{(0,1)}$

Find the reference number for each value of t.

9. $t=\frac{\pi}{2}$

$\boxed{(0,1)}$

10. $t=-\frac{\pi}{3}$

$-\frac{\pi}{3}+\frac{2\pi}{1}\cdot\frac{3}{3}$

$-\frac{\pi}{3}+\frac{6\pi}{3}=\frac{5\pi}{3}$

$\boxed{\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)}$

11. $t = 10\pi - 2\pi = 8\pi$

-2π

6π

-2π

$4\pi - 2\pi = 2\pi$ $(1,0)$

12. $t = \frac{13\pi}{6} - \frac{2\pi \cdot 6}{1 \cdot 6} = \frac{13\pi}{6} - \frac{12\pi}{6} = \frac{\pi}{6}$

$\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

Find the exact value of the trig. function at the given value.

13. $\cos \frac{2\pi}{3} = x = \frac{-1}{2}$

$\left(\frac{-1}{2}, \frac{\sqrt{3}}{2}\right)$

14. $\sin \frac{\pi}{2} = y = 1$

$(0,1)$

15. $\tan \frac{7\pi}{6} = \frac{y}{x} = \frac{-\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = \frac{+1}{2} \cdot \frac{+2}{\sqrt{3}}$

$\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

Flip $= \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

16. $\sec 2\pi = \frac{1}{x} = \frac{1}{1} = 1$

$(1,0)$

17. $\csc\left(-\frac{3\pi}{2}\right) = \frac{1}{y} = \frac{1}{1} = 1$

$-\frac{3}{2}\pi + \frac{2\pi}{1 \cdot 2} \cdot 2$

$-\frac{3}{2}\pi + \frac{4\pi}{2} = \frac{\pi}{2}$ $(0,1)$

18. $\cot\left(-\frac{\pi}{3}\right) = \frac{x}{y} = \frac{\frac{1}{2}}{\frac{-\sqrt{3}}{2}} = \frac{1}{2} \cdot \frac{-2}{\sqrt{3}}$

Flip $= -\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

$-\frac{\pi}{3} + \frac{2\pi \cdot 3}{1 \cdot 3}$

$-\frac{\pi}{3} + \frac{6\pi}{3} = \frac{5\pi}{3}$ $\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

The terminal point P(x) is given. Find sin t, cos t, and tan t.

19. $(\overset{x}{1}, \overset{y}{0})$

$\sin = y = 0$

$\cos = x = 1$

$\tan = \frac{y}{x} = \frac{0}{1} = 0$

20. $\left(\overset{x}{\frac{\sqrt{2}}{2}}, \overset{y}{-\frac{\sqrt{2}}{2}}\right)$

$\sin = y = -\frac{\sqrt{2}}{2}$

$\cos = x = \frac{\sqrt{2}}{2}$

$\tan = \frac{y}{x} = \frac{-\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}}$ Flip $= -\frac{\sqrt{2}}{2} \cdot \frac{2}{\sqrt{2}} = -1$