

# Quarterly Assessment 2 Review

1.  $\frac{2(x-1)}{x^2-1} \cdot \frac{x(x+1)}{x^2-2x+1}$  LCD  $(x+1)(x-1)(x-1)$

$$\frac{2x-2}{(x+1)(x-1)} \cdot \frac{x(x+1)}{(x-1)(x-1)}$$

$$= \frac{2x-2-x^2-x}{(x+1)(x-1)(x-1)}$$

$$= \frac{-1(x^2-x+2)}{(x+1)(x-1)(x-1)}$$

2.  $\frac{x+7}{x^2+5x-14} \div \frac{x^2+x-6}{x+3}$

$$\frac{(x+7)}{(x+7)(x-2)} \cdot \frac{(x+3)}{(x+3)(x-2)}$$

$$\frac{1}{(x-2)(x-2)}$$

3.  $f(x) = \frac{2x^2+7x-4}{x^2+x-2}$

Factor:  $\frac{(2x-1)(x+4)}{(x+2)(x-1)}$

Horizontal asymptote  $y=2$

Domain:  $x+2=0$   $x-1=0$   $x \neq -2, 1$

x-Int:  $2x+1=0$   $x+4=0$   $x = -\frac{1}{2}, -4$   $(-\frac{1}{2}, 0)$   $(-4, 0)$

y-Int:  $\frac{(2 \cdot 0 - 1)(0 + 4)}{(0 + 2)(0 - 1)} = \frac{(-1)(4)}{(2)(-1)} = \frac{-4}{-2} = 2$   $(0, 2)$

Vertical asymptote:  $x+2=0$   $x-1=0$   $x = -2, 1$

No holes

$$4) f(x) = \frac{x^2 - 2}{x - 1}$$

Slant asymptote:  $y = x + 1$   $\perp$   $\begin{array}{r} 1 \quad 0 \quad -2 \\ |x+1 \quad | \end{array}$

Domain:  $x \neq 1$

x-int:  $x^2 - 2 = 0$   $x = \pm\sqrt{2}$   $(\sqrt{2}, 0)$   $(-\sqrt{2}, 0)$

y-int:  $\frac{0^2 - 2}{0 - 1} = \frac{-2}{-1} = 2$   $(0, 2)$

Holes: none

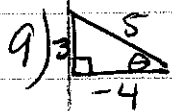
Vertical asymptotes  $x = 1$

$$5) \csc -225 = \frac{2}{\sqrt{2}} = \sqrt{2}$$

$$6) \cos -210 = -\frac{\sqrt{3}}{2}$$

$$7) \sin -300 = \frac{\sqrt{3}}{2}$$

$$8) \tan 30 = \frac{\sqrt{3}}{3}$$

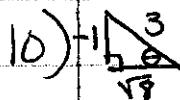


$$16 + b^2 = 25$$

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

$$b^2 = 9$$

$$b = 3$$



$$1 + b^2 = 9$$

$$\sec \theta = \frac{3}{\sqrt{8}} = \frac{3\sqrt{8}}{8}$$

$$b^2 = 8$$

$$b = \sqrt{8}$$

$$11) \text{amp} = 5 \quad \text{per} = \frac{2\pi}{1} = 2\pi \quad \text{ps} = \frac{\pi}{3} (\text{right}) \quad \text{vs} = 2 (\text{up})$$

$$12) \text{amp} = 7 \quad \text{per} = \frac{2\pi}{4} = \frac{\pi}{2} \quad \text{ps} = \frac{\pi}{4} (\text{right}) \quad \text{vs} = -1 (\text{down})$$

$$13) \text{amp} = 4 \quad \text{per} = \frac{2\pi}{1/3} = 6\pi$$

$$14) \text{amp} = \text{none} \quad \text{per} = \frac{\pi}{2/3} = \frac{3\pi}{2}$$

$$14. \frac{\sqrt{2} \sec \theta}{\sqrt{2}} = -\frac{2}{\sqrt{2}}$$

$$\sec \theta = -\frac{2}{\sqrt{2}}$$

$$\cos \theta = -\frac{\sqrt{2}}{2}$$

$$\boxed{\frac{3\pi}{4}, \frac{5\pi}{4}}$$

$$15. -2\sqrt{2} \cos \theta + 5 = 10$$

$$\frac{-2\sqrt{2} \cos \theta}{-2\sqrt{2}} = \frac{5}{-2\sqrt{2}}$$

$$\boxed{\cos \theta = -\frac{5\sqrt{2}}{4}}$$

$$16. 2 \cos^2 \theta - \cos \theta + 1 = 0$$

$$(\cos \theta - 1)(2 \cos \theta + 1) = 0$$

$$\cos \theta - 1 = 0 \quad 2 \cos \theta + 1 = 0$$

$$\cos \theta = 1 \quad \cos \theta = -\frac{1}{2}$$

$$\boxed{0, 2\pi} \quad \boxed{\frac{2\pi}{3}, \frac{4\pi}{3}}$$

$$17. \sec^2 x - 2 = -\sec x$$

$$\sec^2 x + \sec x - 2 = 0$$

$$(\sec x + 2)(\sec x - 1) = 0$$

$$\sec x = -2 \quad \sec x = 1$$

$$\cos x = -\frac{1}{2} \quad \cos x = 1$$

$$\boxed{\frac{2\pi}{3}, \frac{4\pi}{3}} \quad \boxed{0, 2\pi}$$

$$18. \sec^{-1} 2 = \frac{\pi}{3} \quad \cancel{\frac{5\pi}{3}}$$

$$\cos^{-1} \frac{1}{2} \quad (0, 180)$$

$$19. \tan^{-1}(-\sqrt{3})$$

$$\frac{5\pi}{3} \rightarrow \boxed{-\frac{\pi}{3}}$$

$$(-90, 90)$$

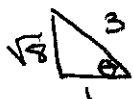
$$20. \arccos\left(-\frac{\sqrt{3}}{2}\right) = \boxed{\frac{5\pi}{6}}$$

$$21. \csc^{-1}(-\sqrt{2}) = \frac{7\pi}{4} \Rightarrow \boxed{-\frac{\pi}{4}}$$

$$\sin^{-1}\left(-\frac{1}{\sqrt{2}}\right) = -\frac{\pi}{4} \quad (-90, 90)$$

$$22. \csc(\arctan(-1))$$

$$\csc\left(-\frac{\pi}{4}\right) = \boxed{-\sqrt{2}}$$

$$23. \sec(\cos^{-1}(\frac{1}{3}))$$


$$1^2 + b^2 = 3^2$$

$$b^2 = 8$$

$$b = \sqrt{8}$$

$$\boxed{\sec \theta = \frac{3}{1}}$$

