

## SBM 2 Review B

Find the amplitude, the period in radians, the phase shift in radians, and the vertical shift.

$$1) y = \frac{1}{7} \cdot \csc 5\theta - 1$$

$$\text{amp: } \frac{1}{7} \text{ (or none)}$$

$$\text{period: } \frac{2\pi}{5}$$

$$\text{ps: None}$$

$$\text{vs: } -1 \text{ (down 1)}$$

$$2) y = 2\cos\left(4\theta + \frac{\pi}{2}\right)$$

$$\text{amp: } 2$$

$$\text{per: } \frac{\pi}{2}$$

$$\text{ps: } -\frac{\pi}{8}$$

$$\text{vs: None}$$

$$3) y = \sin\left(7\theta + \frac{\pi}{6}\right) + 5$$

$$\text{amp: } 1$$

$$\text{per: } \frac{2\pi}{7}$$

$$\text{ps: } -\frac{\pi}{42}$$

$$\text{vs: } 5 \text{ (up 5)}$$

$$4) y = -3 + \cot\left(\frac{\theta}{7} + \frac{\pi}{2}\right)$$

$$\text{amp: } 1 \text{ (or none)}$$

$$\text{per: } 7\pi$$

$$\text{ps: } -\frac{7\pi}{2}$$

$$\text{vs: down 3}$$

$$5) y = 2\sec\left(\frac{\theta}{2} + \frac{\pi}{6}\right) - 2$$

$$\text{amp: } 2 \text{ (or none)}$$

$$\text{per: } 4\pi$$

$$\text{ps: } -\frac{\pi}{3}$$

$$\text{vs: down 2}$$

$$6) y = \frac{1}{3} \cdot \tan\left(\theta + \frac{\pi}{4}\right)$$

$$\text{amp: } \frac{1}{3} \text{ (or none)}$$

$$\text{per: } \pi$$

$$\text{ps: } -\frac{\pi}{4}$$

$$\text{vs: None}$$

Verify each identity.

$$7) \frac{\sec x}{\tan^2 x + \sec^2 x} = \frac{\cos x}{\sin^2 x + 1}$$

$$8) \frac{\sec x - 1}{\sec x} = 1 - \cos x$$

$$9) -\csc^2 x \cos^2 x = 1 - \csc^2 x$$

$$10) \csc^2 x (1 - \sec^2 x) = -\sec^2 x$$

Simplify the expression using identities

11)  $\sec \theta \sin \theta$

$\tan \theta$

12)  $\tan^2 \theta - \sec^2 \theta$

$-1$

13)  $(1 + \cos \theta)(1 - \cos \theta)$

$\sin^2 \theta$

14)  $\cos^2 \theta (\sec^2 \theta - 1)$

$\sin^2 \theta$

15)  $\sin \theta (\csc \theta - \sin \theta)$

$\cos^2 \theta$

16)  $(1 - \cos \theta)(1 + \sec \theta)(\cos \theta)$

$\sin^2 \theta$

$$17. \frac{1}{\sin^2 \theta} - \frac{1}{\tan^2 \theta}$$

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$$18. \frac{\cos^4 \theta - \sin^4 \theta}{\cos^2 \theta - \sin^2 \theta}$$

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$$19. \frac{\csc \theta}{\tan \theta \cot \theta}$$

$\csc \theta$

$$20. \frac{\tan x}{\csc x} + \frac{\sin x}{\tan x}$$

$\sec x$

$$21. \frac{\sec x}{\sin x} - \frac{\sin x}{\cos x}$$

$\cot x$

$$22. \csc x - \frac{\csc x}{\sec^2 x}$$

$\sin x$