1. Determine the equivalent measure in degrees of each of the following radian measures.

    a. $\dfrac{\pi}{12}$

    b. $\dfrac{5\pi}{2}$

    c. 5

2. Determine the equivalent measure in radians of each of the following degree measures.

    a. 18°

    b. −32°

    c. −540°

3. Find the i) smallest positive co-terminal angle and ii) reference angle for:

    a. 1200°

    b. −480°

    c. $\dfrac{4\pi}{3}$

    d. $-\dfrac{7\pi}{2}$

4. If the point (−2, 5) is on the terminal arm of angle θ, find the exact value of:

    a. $\cot\theta$

    b. $\cos\theta$

    c. $\csc\theta$

5. What is the value of $\sin\theta + \cos\theta$ for a standard position angle whose terminal arm passes through (0, −4).

6. Find the period of the following.

    a. $y = 3\sin 2x$

    b. $y = -2\tan\dfrac{1}{3}\theta$

    c. $y = -\dfrac{2}{5}\cot\dfrac{\pi\theta}{2}$

7. Sketch at least one complete period of:

    a. $y = -3\sin\dfrac{\pi}{3}(x+2)+1$

    b. $y = 2\cos\left(\dfrac{x}{2}+4\pi\right)$

    c. $y = \sec 2\theta$

8. Find the amplitude, phase shift, vertical displacement and period for:
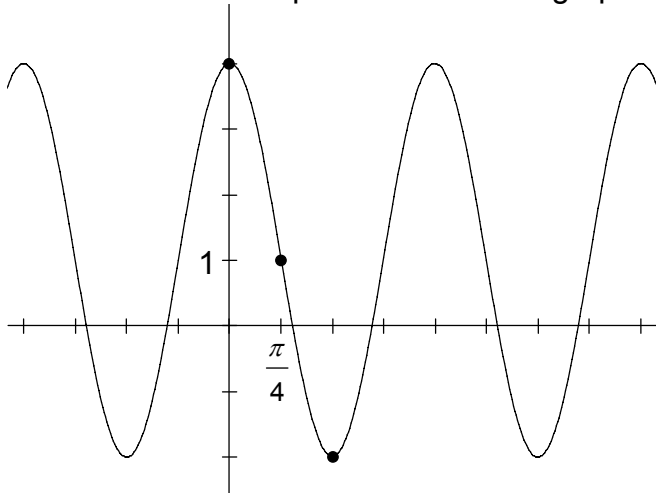
   a. $y = -3\sin\dfrac{\pi}{6}(x-1)$

   b. $y = 2\cos\dfrac{\pi}{4}(x+2)+1$

9. Find a function in the form $y = a\sin bx + c$ if it has a maximum point of (2, 3) and the closest minimum point of (6, –7).
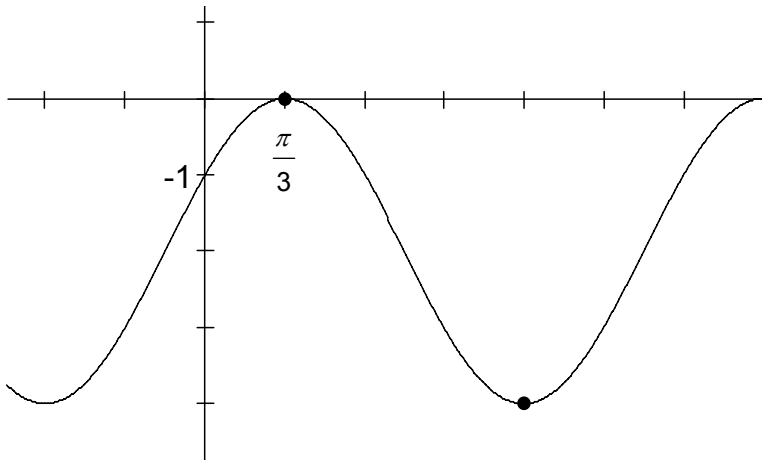
10. A Ferris wheel has a radius of 25 m and its centre is 26 m above ground. It rotates once every 40 seconds. Assuming you get on at the bottom:
    a. Write a sinusoidal function that describes your height above the ground with respect to time.
    b. How high above the ground would you be after 16 seconds?
    c. For how many seconds on each rotation are you more than 35m in the air?

11. Determine the equation of the sine graph below.

12. Write an equation for the graph below in the form $y = a\cos b(x-c)+d$.

CHAPTER 4 REVIEW – ANSWERS
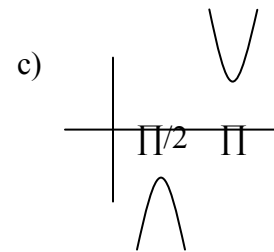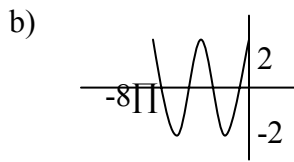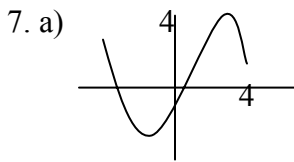
1. a) 15° b) 450° c) 286.48^o

2. a) $\prod/10$ or 0.31   b) $-8\prod/45$ or -0.56 c) $-3\prod$ or -9.42

3. a) i) 120o ii) 60o   b) i) 240o ii) 60o   c) i) $10\prod/3$ ii) $\prod/3$ d) i) $\prod/2$ ii) $\prod/2$

4. a) $-2/5$ b) $-2/\sqrt{29}$ c) $\sqrt{29}/5$

5. -1

6. a) $\prod$ b) $3\prod$ c) 2

7. a)   b)   c)

8. a) a = 3   PS = 1   T = 12
    b) a = 2   PS = $\prod/6$ T = $\prod$ Vert.Displ Up 1

9. $y = 5\sin((\prod/4)x)-2$

10. a) $y = 25\sin((\prod/20)(x-10))+26$ b) 4.23m   c) 15.3s

11. $y = -3\sin2(x - \prod/4)+1$ OR $y = 3\sin2(x + \prod/4)+1$

12. $y = 2\cos(x - \prod/3) - 2$