

## Math 3201 – Unit 8 Sample Questions

### Section 8.1

1. What is  $315^\circ$  written as a radian measure?

(A)  $\frac{7}{8}$

(B)  $\frac{7}{4}$

(C)  $\frac{7\pi}{4}$

(D)  $\frac{9\pi}{4}$

2. What is the value of  $\frac{5\pi}{6}$  in degrees?

(A)  $120^\circ$

(B)  $150^\circ$

(C)  $210^\circ$

(D)  $240^\circ$

3. What is the value of  $\frac{3\pi}{2}$  in degrees?

(A)  $120^\circ$

(B)  $240^\circ$

(C)  $270^\circ$

(D)  $540^\circ$

4. What is  $\frac{4\pi}{9}$  radians in degrees?

(A)  $45^\circ$

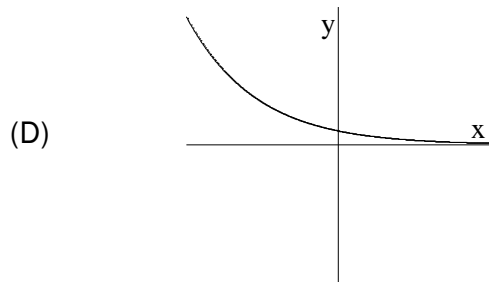
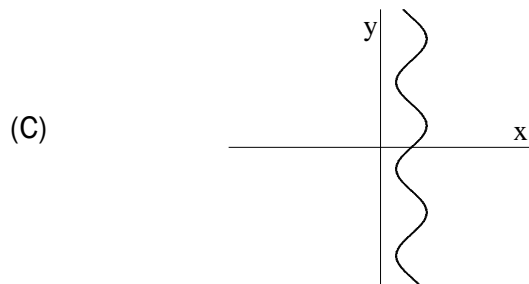
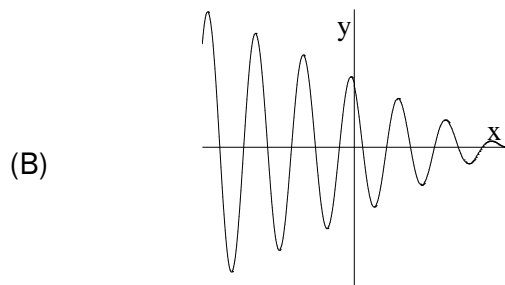
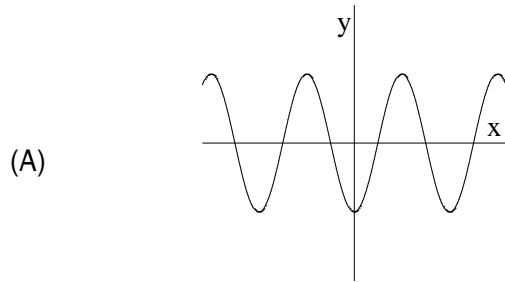
(B)  $80^\circ$

(C)  $160^\circ$

(D)  $405^\circ$

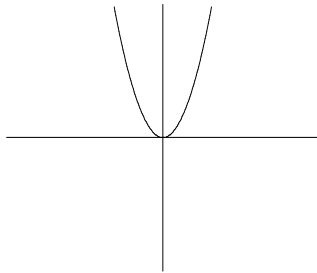
**Sections 8.2-8.3**

5. Which graph represents a sinusoidal function?

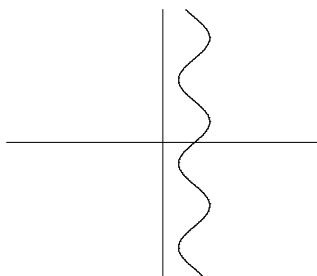


6. Which graph represents a function that is periodic and sinusoidal?

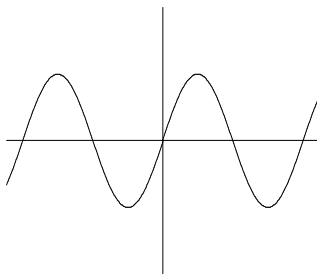
(A)



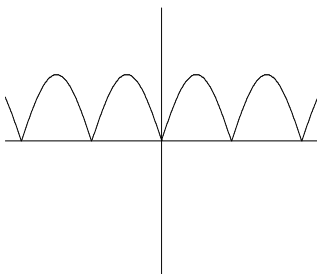
(B)



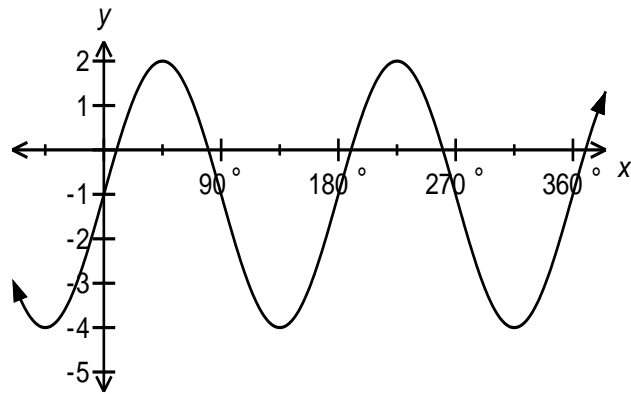
(C)



(D)



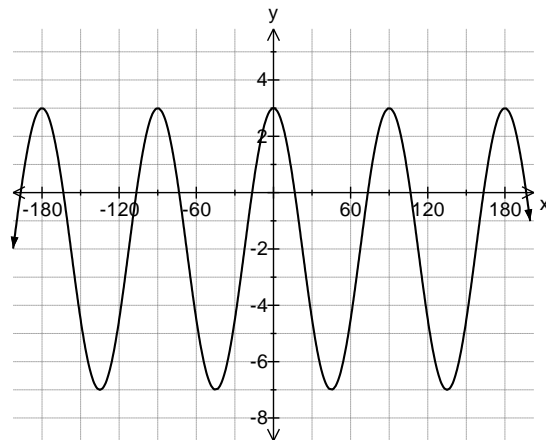
7. What is the midline equation for the graph shown below?



- (A)  $y = -4$   
 (B)  $y = -1$   
 (C)  $y = 0$   
 (D)  $y = 2$

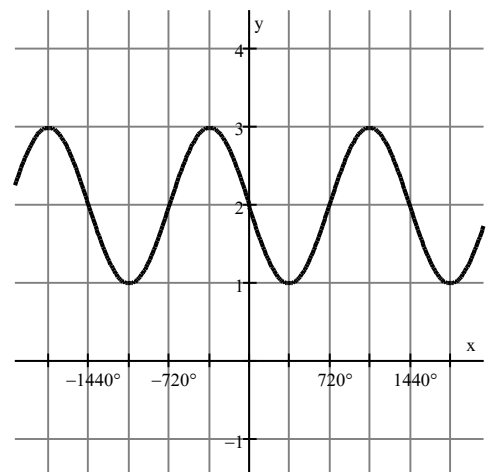
8. What is the equation of the midline of the function graphed below?

- (A)  $y = -7$   
 (B)  $y = -2$   
 (C)  $y = 2$   
 (D)  $y = 3$



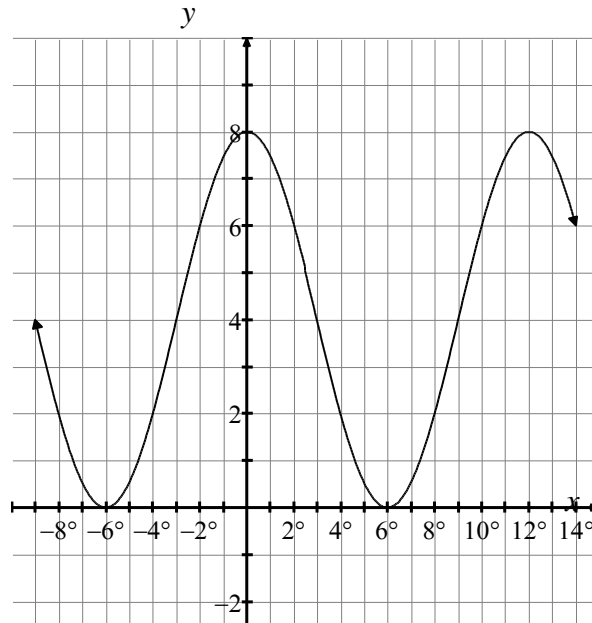
9. What is the equation of the midline of the graph below?

- (A)  $x = 1$   
 (B)  $x = 2$   
 (C)  $y = 1$   
 (D)  $y = 2$



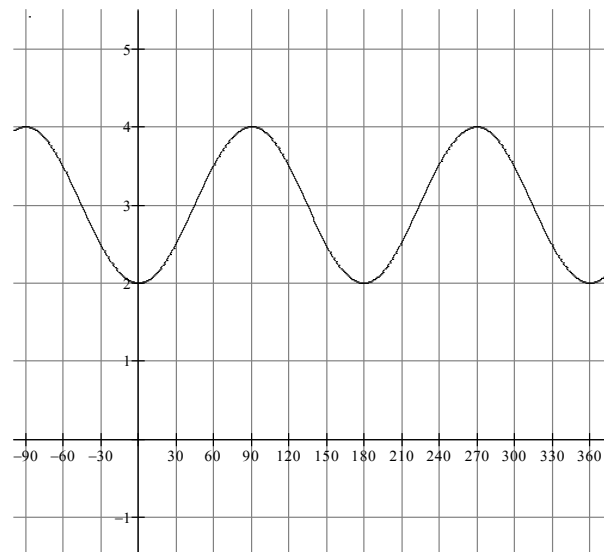
10. What is the equation of the midline of the function graphed below?

- (A)  $y = -4$
- (B)  $y = 0$
- (C)  $y = 4$
- (D)  $y = 8$



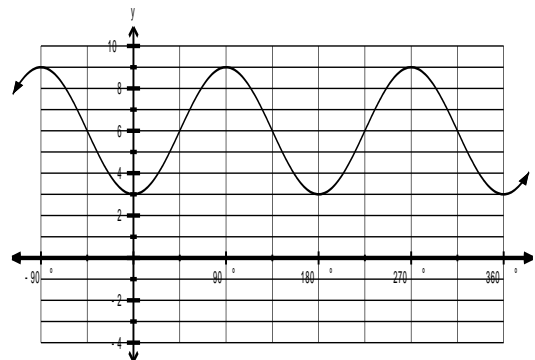
11. What is the equation of the midline of the graph below?

- (A)  $x = 3$
- (B)  $x = 4$
- (C)  $y = 3$
- (D)  $y = 4$



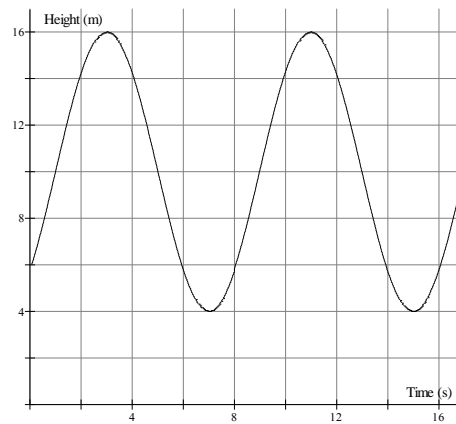
12. Given the graph of the function below, what is the equation of the midline?

- (A)  $y = 3$
- (B)  $y = 6$
- (C)  $x = 3$
- (D)  $x = 6$



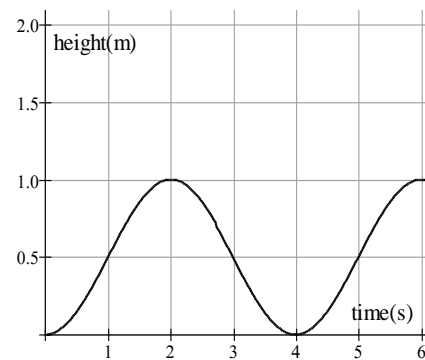
13. The graph below shows Jane's height on a Ferris wheel over a period of time. What is the amplitude of the sinusoidal function that models the Ferris wheel?

- (A) 6
- (B) 10
- (C) 12
- (D) 20



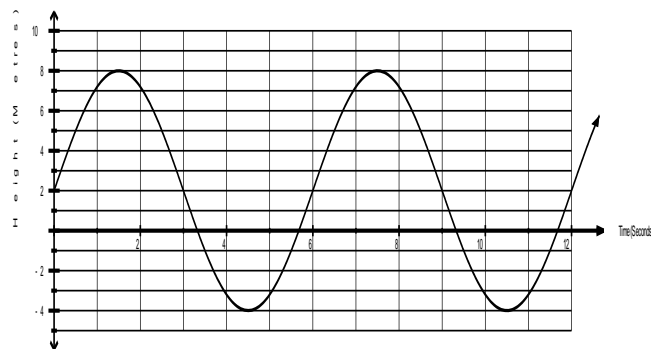
14. The graph below shows the height of a pebble stuck in a tire tread. What is the amplitude of the sinusoidal function that models the rotation of the tire, in metres?

- (A) -0.5
- (B) 0.5
- (C) 1
- (D) 2



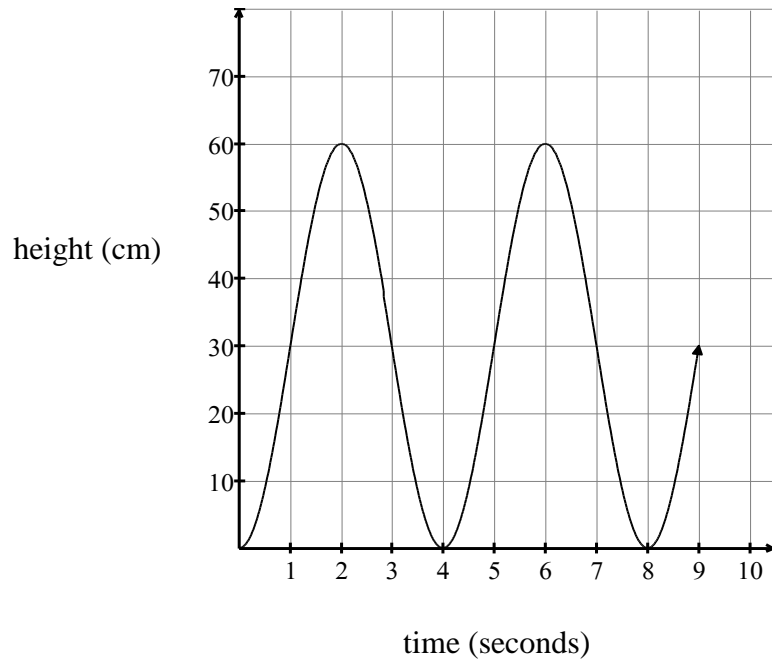
15. The graph below shows the height of a nail on a water wheel with respect to the water level. What is the amplitude of the sinusoidal function that models the motion of the wheel?

- (A) -4 m
- (B) 2 m
- (C) 6 m
- (D) 8 m



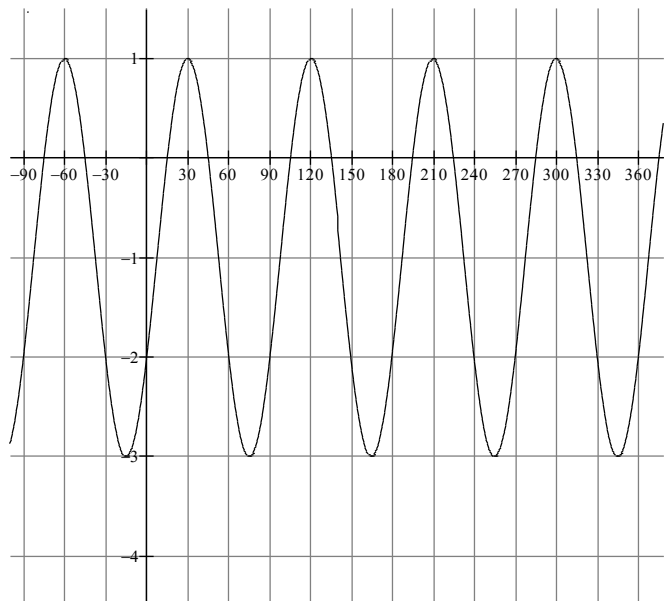
16. A pebble is stuck in a car tire. The height of the pebble varies sinusoidally with time as shown in the graph below. What is the amplitude of the function that models this situation?

- (A) 4
- (B) 8
- (C) 30
- (D) 60



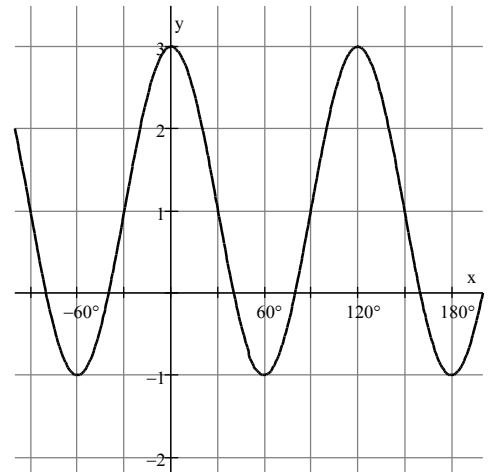
17. What is the range of the graph below?

- (A)  $\{x \mid -90^\circ \leq x \leq 180^\circ, x \in R\}$
- (B)  $\{x \mid x \in R\}$
- (C)  $\{y \mid -3 \leq y \leq 1, y \in R\}$
- (D)  $\{y \mid y \in R\}$



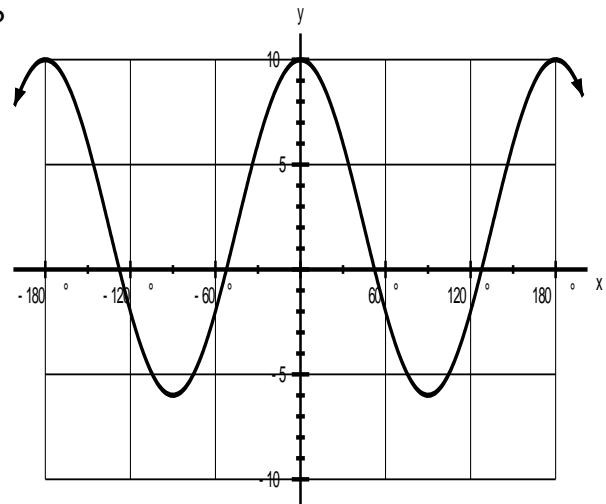
18. What is the range of the graph to the right?

- (A)  $\{x \mid x \in \mathbb{R}\}$
- (B)  $\{x \mid -1 \leq x \leq 3, x \in \mathbb{R}\}$
- (C)  $\{y \mid y \in \mathbb{R}\}$
- (D)  $\{y \mid -1 \leq y \leq 3, y \in \mathbb{R}\}$



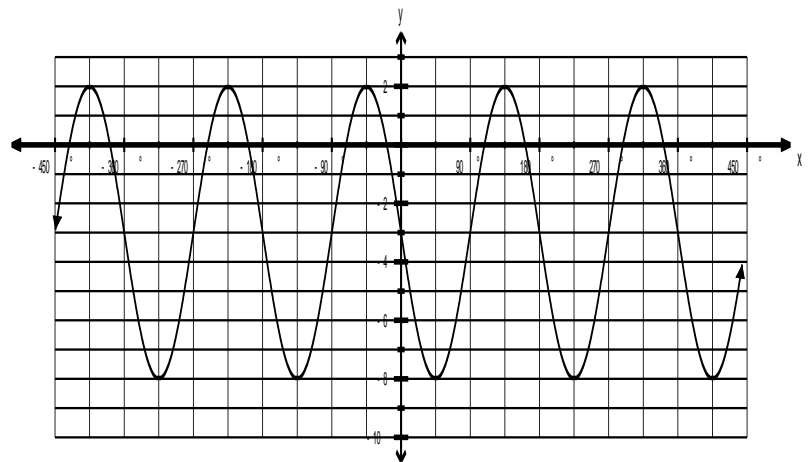
19. What is the range of the graph to the right?

- (A)  $\{x \mid -10 \leq x \leq 10, x \in \mathbb{R}\}$
- (B)  $\{x \mid -10 < x < 10, x \in \mathbb{R}\}$
- (C)  $\{y \mid -6 \leq y \leq 10, y \in \mathbb{R}\}$
- (D)  $\{y \mid -6 < y < 10, y \in \mathbb{R}\}$



20. What is the range of the graph to the right?

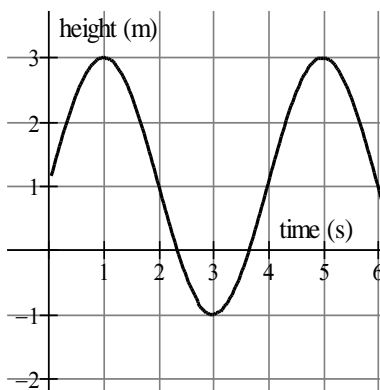
- (A)  $\{y \mid -8 \leq y \leq 2, y \in \mathbb{R}\}$
- (B)  $\{x \mid x \in \mathbb{R}\}$
- (C)  $\{y \mid -2 \leq y \leq 8, y \in \mathbb{R}\}$
- (D)  $\{y \mid y \in \mathbb{R}\}$





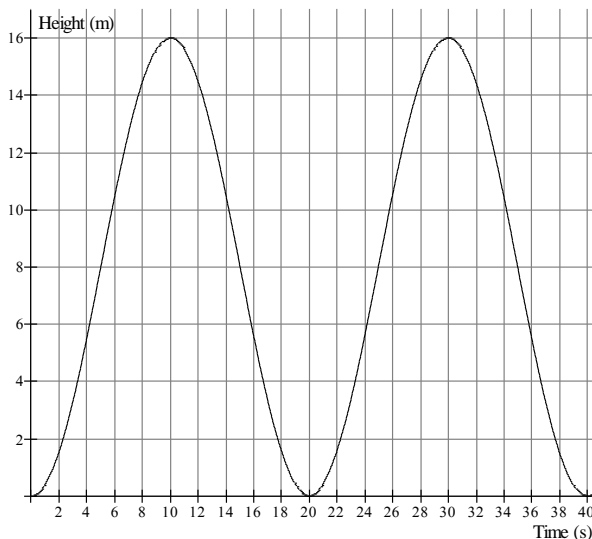
21. What is the period of the graph below?

- (A) 2
- (B) 3
- (C) 4
- (D) 5



22. The graph to the right shows the position of a piece of tape on a can that is rolling along the floor. How many seconds does it take for the piece of tape to make one revolution?

- (A) 10
- (B) 20
- (C) 30
- (D) 40



23. Reuben is riding on a Ferris wheel. The graph of his height,  $h$ , above ground at time,  $t$ , is shown. What is the diameter of the Ferris wheel, in metres?

- (A) 6
- (B) 12
- (C) 13
- (D) 16

