

Assignment

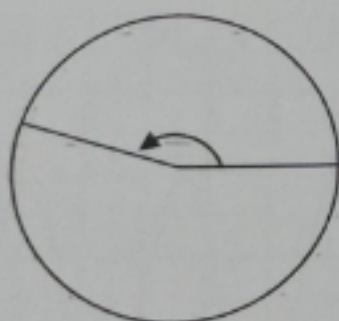
Show your work and provide a full explanation to earn full marks.

1. Convert. (3 marks)

- a. $45^\circ =$ _____ radians d. $1.57 \text{ radians} =$ _____ $^\circ$
- b. $135^\circ =$ _____ radians e. $5\pi =$ _____ $^\circ$
- c. $460^\circ =$ _____ radians f. $\frac{4\pi}{3} =$ _____ $^\circ$

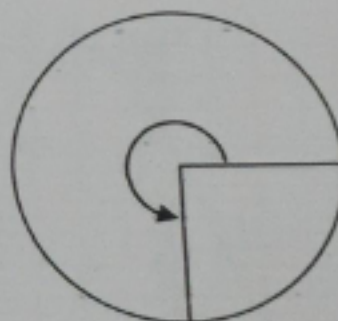
2. Estimate the measure of the angle in radians and degrees. (4 marks)

a.



_____ radians
_____ $^\circ$

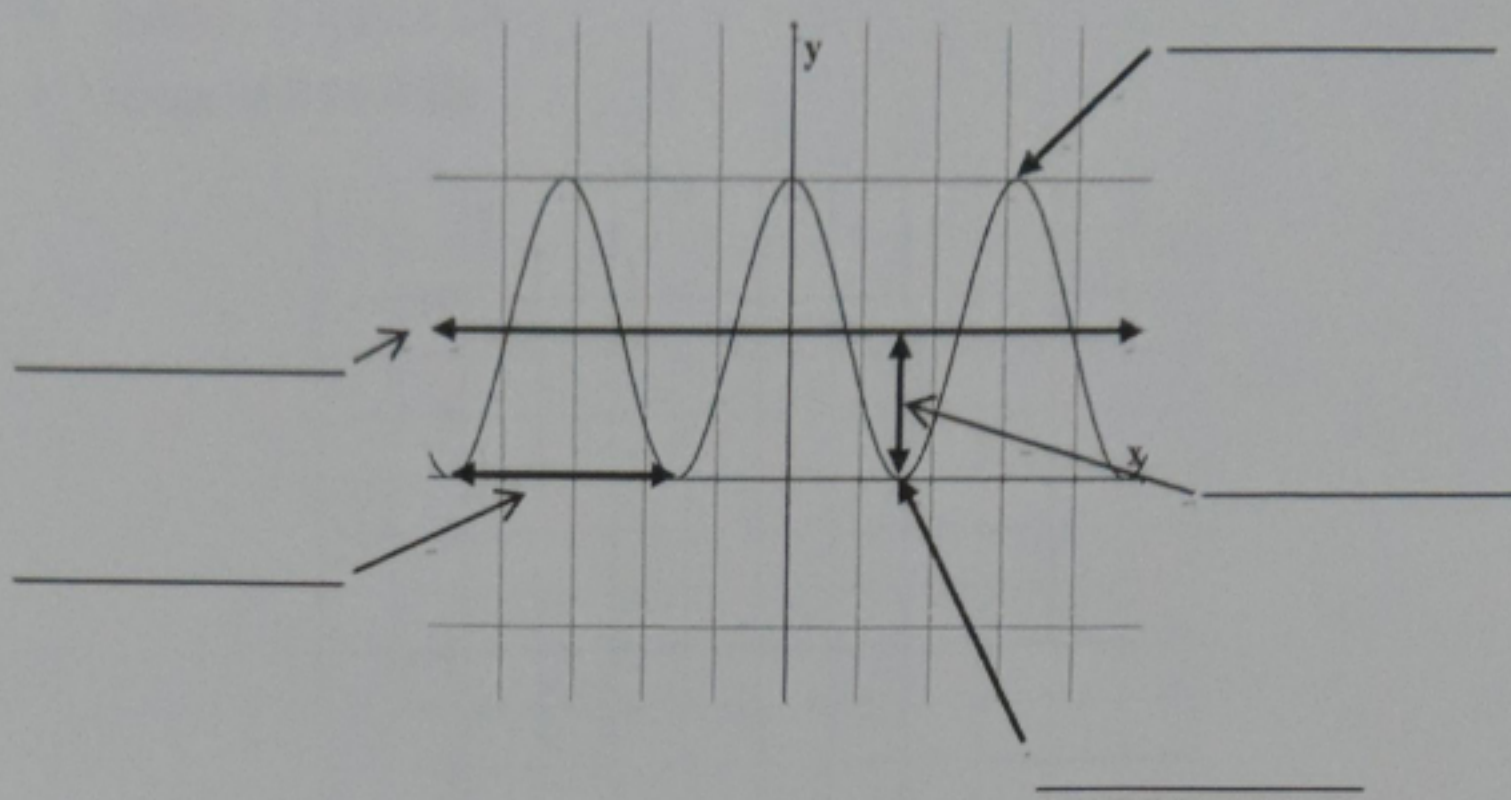
b.



_____ radians
_____ $^\circ$

3. Identify each part of the graph by writing one of the following in each blank:

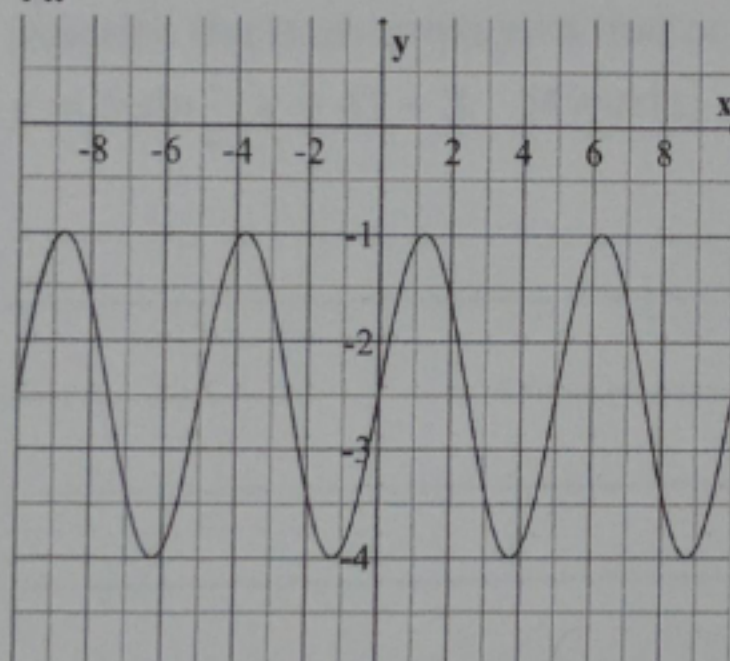
- maximum
- minimum
- midline
- period
- amplitude



(5 marks)

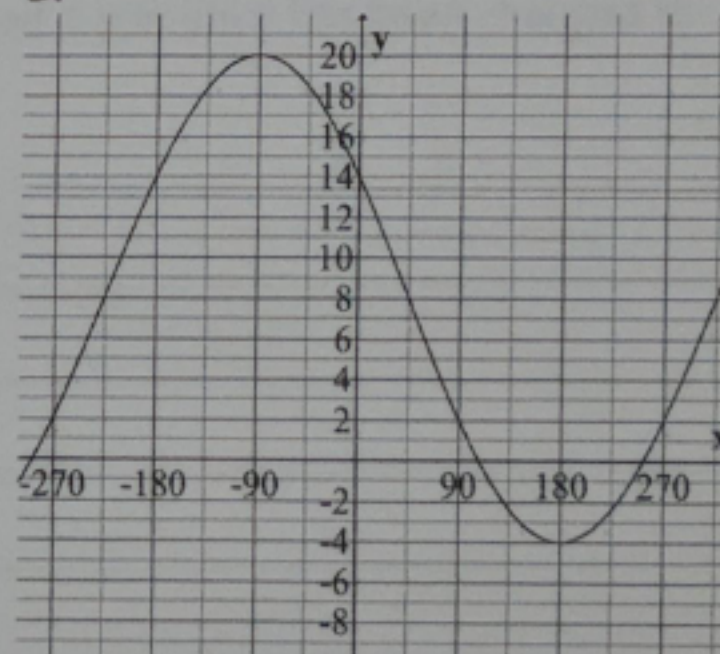
4. Determine the following characteristics of each graph:
(4 marks)

A.



amplitude: _____
period: _____
midline: _____
range: _____

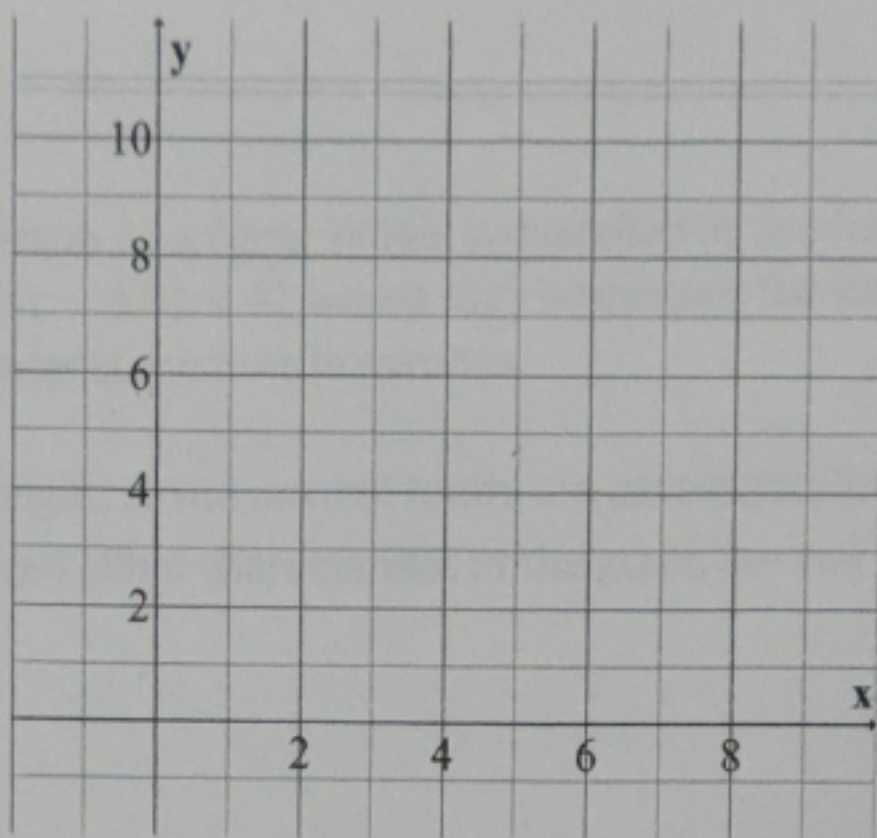
B.



amplitude: _____
period: _____
midline: _____
range: _____

5. Graph a cosine function with the following characteristics:

- period = π
- y-intercept = $(0, 6)$
- domain of $0 \leq x \leq 2\pi$
- range of $2 \leq y \leq 10$



(4 marks)

6. Describe the transformations that occurred if $y = \sin x$ has been changed to $y = 5 \sin \frac{1}{2}(x + 4) - 3$. (4 marks)

7. How would $y = 3 \sin 4(x + 75^\circ)$ compare to $y = 3 \cos 4(x + 75^\circ)$?
(2 marks)

8. The height of a person on a Ferris Wheel is modelled by the function $h(t) = 38 \sin 3.5(t - 4.0) + 41$ where $h(t)$ represents the height of the person in feet and t represents the time in minutes.

- At what height, to the nearest tenth, are passengers loaded onto the Ferris wheel? What characteristic of the graph are you finding? (1 mark)
- How long does it take, to the nearest tenth of a minute, to make one revolution? What characteristic of the graph are you finding? (1 mark)
- What is the maximum height a passenger will reach? What characteristic of the graph are you finding? (1 mark)
- What is the radius of the Ferris wheel? What characteristic of the graph are you finding? (1 mark)

9. The average number of hours of daylight each month in Calgary, Alberta is shown in the table below.

MONTH	Daylight (hours)
January	8.50
February	10.03
March	11.91
April	13.87
May	15.57
June	16.48
July	16.03
August	14.51
September	12.63
October	10.68
November	9.20
December	7.99

- a. Determine the regression equation that models the number of daylight hours each month. (1 mark)
- b. What does the 'd' value indicate in the regression equation **in regards to this scenario**? (Do not just identify the d value. Explain what it means.) (1 mark)
- c. What days of the year have 11 hours of daylight? (2 marks)