PROBLEM SET: Use your notes from yesterday to answer the following questions about trig equations and their graphs.

1. What is the minimum and maximum value for each function below?

(i) $y = -8\cos(x) + 2$

Maximum: _____

Minimum: _____

(ii) $y = 22\sin(x) + 30$

Maximum: _____

Minimum: _____

2. For each graph below, identify:

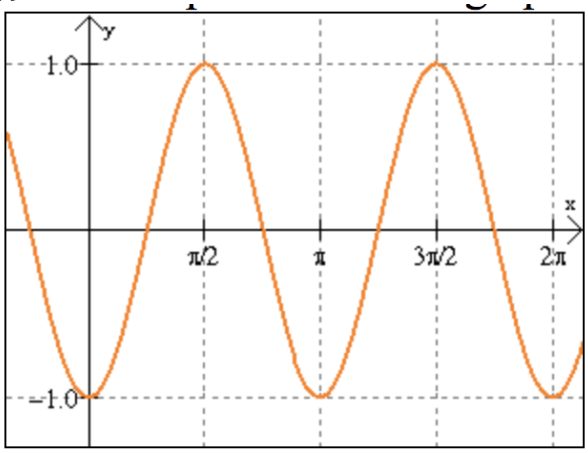
(a) Is it a Sine or Cosine graph?

(b) Is the graph positive or negative?

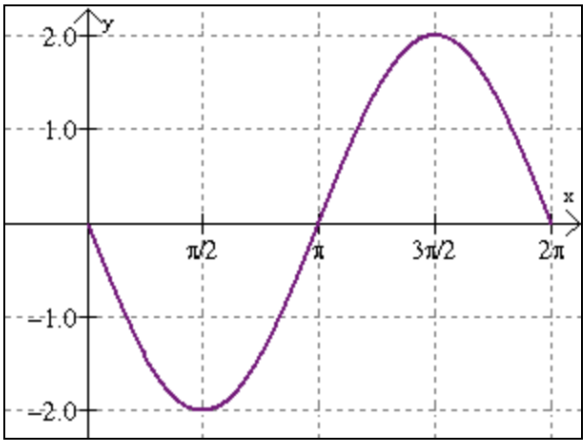
(c) What is the midline?

(d) What is the amplitude?

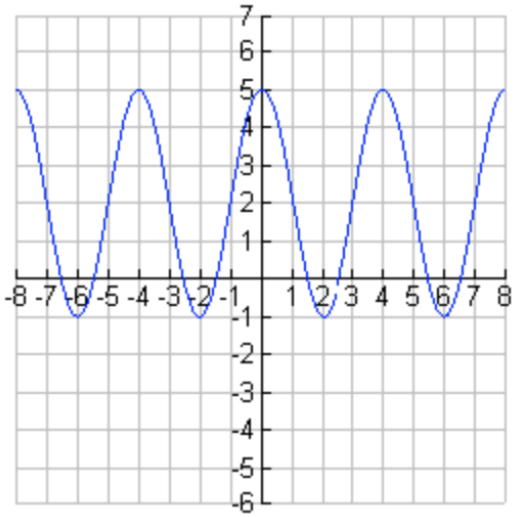
(i)



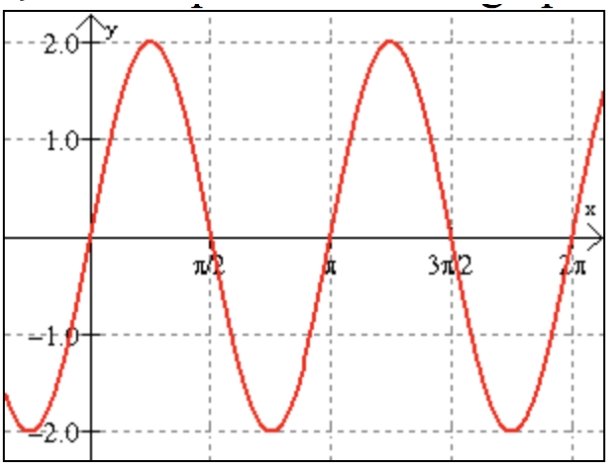
(ii)



(iii)



(iv)



ANSWER KEY:

1. What is the minimum and maximum value for each function below?

(i) $y = -8\cos(x) + 2$

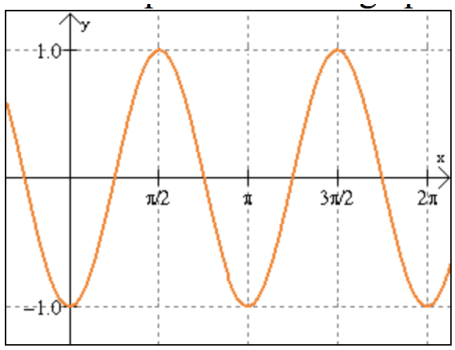
Maximum: 10 (2 + 8)
Minimum: -6 (2 - 8)

(ii) $y = 22\sin(x) + 30$

Maximum: 52 (30 + 22)
Minimum: 8 (30 - 22)

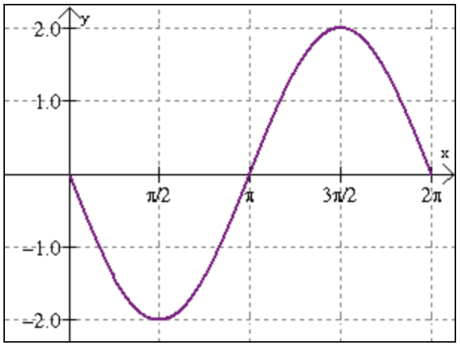
2. For each graph below, identify:

(i)



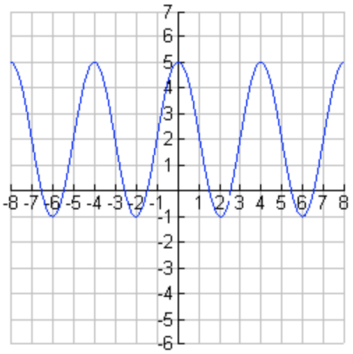
(a) Cosine (intersects y axis at Minimum - as opposed to Midline for Sine)
(b) Negative (intersects at Minimum - as opposed to Maximum)
(c) Midline: y = 0
(d) Amplitude: 1

(ii)



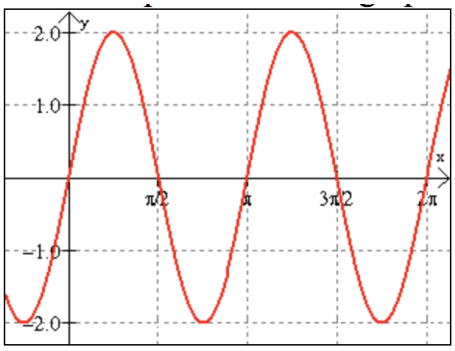
(a) Sine (intersects y axis at Midline - as opposed to Max/Min for Coine)
(b) Negative (graph goes down to Minimum after intersection)
(c) Midline: y = 0
(d) Amplitude: 2

(iii)



(a) Cosine (intersects y axis at Maximum - as opposed to Midline for Sine)
(b) Positive (intersects at Maximum - as opposed to Minimum)
(c) Midline: y = 2 → $\left(\frac{5+-1}{2}\right)$
(d) Amplitude: 3 → $\left(\frac{5--1}{2}\right)$

(iv)



(a) Sine (intersects y axis at Midline - as opposed to Max/Min for Coine)
(b) Positive (graph goes up to Maximum after intersection)
(c) Midline: y = 0
(d) Amplitude: 2 → $\left(\frac{2--2}{2}\right)$