Pg. 399 - 400 #1-56 ALL, 61-66 all

1) Positive y-axis, 450°

2) QII, 135°

3) QIII, $-3\pi/4$

4) QIV $-\pi/4$

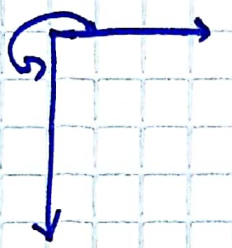
5) QI, $13\pi/30$

6) QIII $28\pi/45$

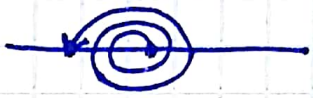
7) QI, 15°

8) QII 126°

9) 270° $\frac{3\pi}{2}$



10) 900° 5π



11) 30° $\pi/6$

12) 135° $3\pi/4$

13) 120° $2\pi/3$

14) 225° $5\pi/4$

15) skip

16) skip

17) $\frac{1}{2}$

18) $\frac{\sqrt{3}}{2}$

19) 1

20) $-\sqrt{2}$

21) $\frac{1}{2}$

22) $\frac{2}{\sqrt{3}}$

23) 2

24) $\sqrt{3}$

25) -1

26) -1

27) 0

28) 0

29) $\sin\left(-\frac{\pi}{6}\right) = -\frac{1}{2}$ $\cos\left(-\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}$ $\tan\left(-\frac{\pi}{6}\right) = -\frac{1}{\sqrt{3}}$

$\csc\left(-\frac{\pi}{6}\right) = -2$ $\sec\left(-\frac{\pi}{6}\right) = \frac{2}{\sqrt{3}}$ $\cot\left(-\frac{\pi}{6}\right) = -\sqrt{3}$

30) $\sin\frac{19\pi}{4} = \frac{\sqrt{2}}{2}$ $\cos\frac{19\pi}{4} = -\frac{\sqrt{2}}{2}$ $\tan\frac{19\pi}{4} = -1$

$\csc\frac{19\pi}{4} = \sqrt{2}$ $\sec\frac{19\pi}{4} = -\sqrt{2}$ $\cot\frac{19\pi}{4} = -1$

31) $\sin(-1350) = -\frac{\sqrt{2}}{2}$ $\cos(-135^\circ) = -\frac{\sqrt{2}}{2}$ $\tan(-135^\circ) = 1$

$\csc(-135) = -\sqrt{2}$ $\sec(-135) = -\sqrt{2}$ $\cot(-135^\circ) = 1$

32) $\sin 420^\circ = \frac{\sqrt{3}}{2}$ $\cos 420 = \frac{1}{2}$ $\tan 420 = \sqrt{3}$

$\csc 420 = \frac{2}{\sqrt{3}}$ $\sec 420 = 2$ $\cot 420 = \frac{1}{\sqrt{3}}$

33) $\sin\alpha = \frac{5}{13}$ $\cos\alpha = \frac{12}{13}$ $\tan\alpha = \frac{5}{12}$

$\csc\alpha = \frac{13}{5}$ $\sec\alpha = \frac{13}{12}$ $\cot\alpha = \frac{12}{5}$

34) $\sin\theta = \frac{2\sqrt{6}}{7}$ $\cos\theta = \frac{5}{7}$ $\tan\theta = \frac{2\sqrt{6}}{5}$

$\csc\theta = \frac{7}{2\sqrt{6}}$ $\sec\theta = \frac{7}{5}$ $\cot\theta = \frac{5}{2\sqrt{6}}$

35) $\sin\theta = \frac{15}{17}$ $\cos\theta = \frac{8}{17}$ $\tan\theta = \frac{15}{8}$

$\csc\theta = \frac{17}{15}$ $\sec\theta = \frac{17}{8}$ $\cot\theta = \frac{8}{15}$

36) $\approx 64.623°$

37) skip

38) skip

39) $a \approx 8.604$
$b \approx 12.287$
$\beta = 55°$

40) $a = 6$
$\alpha \approx 36.87°$
$\beta \approx 53.13°$

41) $b \approx 7.774$
$c \approx 10.461$
$\alpha = 42°$

42) $a \approx 3.756$
$b \approx 7.064$
$\beta \approx 62°$

43) $a \approx 2\sqrt{6} = 4.9$ $\alpha = 44.42°$ $\beta = 45.58°$

44) $c \approx 7.716$ $\alpha = 18.9°$ $\beta \approx 71.1°$

45) Q III

46) Q II

47) Q II

48) Q II

49) $\sin\theta = \frac{2}{\sqrt{5}}$ $\csc\theta = \frac{\sqrt{5}}{2}$
$\cos\theta = -\frac{1}{\sqrt{5}}$ $\sec\theta = -\sqrt{5}$
$\tan\theta = -2$ $\cot\theta = -\frac{1}{2}$

50) $\sin\theta = \frac{7}{\sqrt{193}}$ $\csc\theta = \frac{\sqrt{193}}{7}$
$\cos\theta = \frac{12}{\sqrt{193}}$ $\sec\theta = \frac{\sqrt{193}}{12}$
$\tan\theta = \frac{7}{12}$ $\cot\theta = \frac{12}{7}$

51) $\sin\theta = -\frac{3}{\sqrt{34}}$ $\quad \csc\theta = -\frac{\sqrt{34}}{3}$

$\cos\theta = -\frac{5}{\sqrt{34}}$ $\quad \sec\theta = -\frac{\sqrt{34}}{5}$

$\tan\theta = \frac{3}{5}$ $\quad \cot\theta = \frac{5}{3}$

52) $\sin\theta = \frac{9}{\sqrt{97}}$ $\quad \csc\theta = \frac{\sqrt{97}}{9}$

$\cos\theta = \frac{4}{\sqrt{97}}$ $\quad \sec\theta = \frac{\sqrt{97}}{4}$

$\tan\theta = \frac{9}{4}$ $\quad \cot\theta = \frac{4}{9}$

53) $y = \sin(x+\pi)$

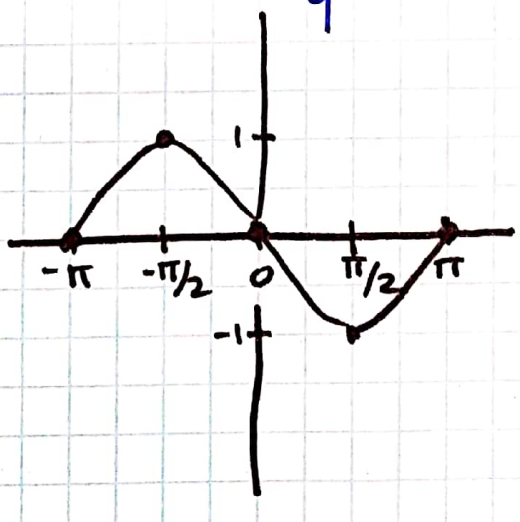
Amp = 1

Per = 2π

Phase shift left π

LE $x + \pi = 0$ $\quad x = -\pi$

RE $x + \pi = 2\pi$ $\quad x = \pi$

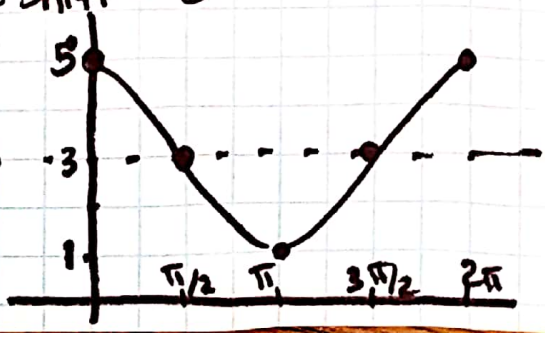


54) $y = 3 + 2\cos x$

$= 2\cos(x) + 3$

Amp = 2 $\quad$ Phase shift = 0

Per = 2π $\quad$ Vertical shift = 3

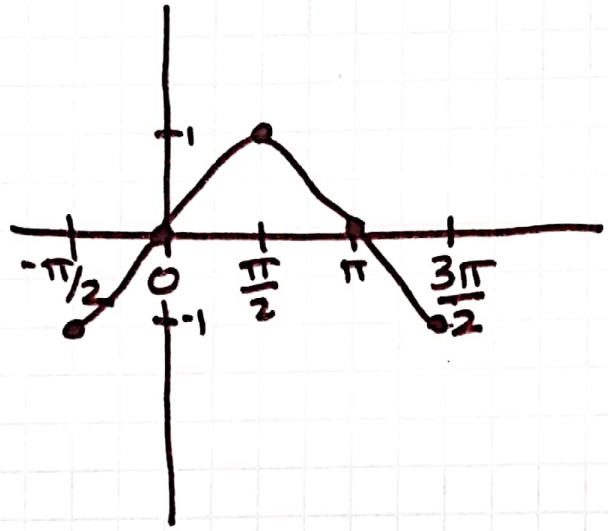


55) $y = -\cos(x + \pi/2) + 4$

A = 1 Per 2π Phase Shift $-\pi/2$ (Left $\pi/2$)

L.E. $x = -\frac{\pi}{2}$

R.E $x = \frac{3\pi}{2}$

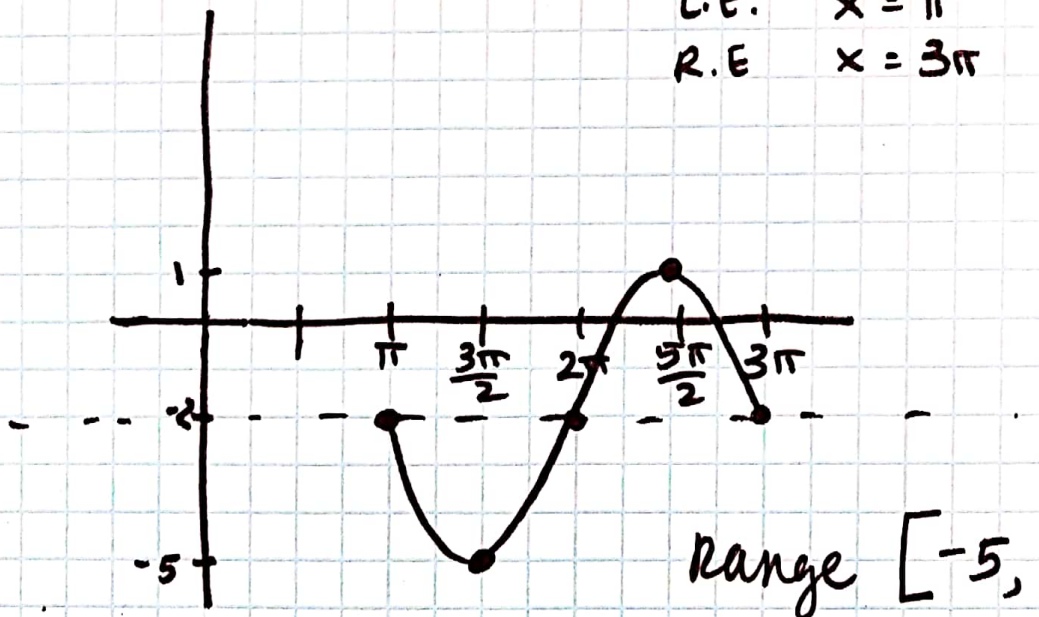


56) $y = -2 - 3\sin(x - \pi)$

A = 3 Per = 2π Phase Shift Right π Vert Shift -2 down 2

L.E. $x = \pi$

R.E $x = 3\pi$



Range $[-5, 1]$

* None of these (61-68) have vert. shift.

61) $f(x) = 2\sin 3x$

$A = 2$ $\quad Per = \frac{2\pi}{3}$

Range $[-2, 2]$

Domain $(-\infty, \infty)$

62) $g(x) = 3\cos 4x$

$A = 3$

$Per = \frac{\pi}{2}$

Range $[-3, 3]$

Domain $(-\infty, \infty)$

63) $f(x) = 1.5\sin(2x - \pi/4)$

Amp = 1.5 $\quad$ Phase shift Right $\frac{\pi}{8}$

Per = π $\quad$ Range $[-1.5, 1.5]$

Domain $(-\infty, \infty)$

64) $A = 2$

$per = \frac{2\pi}{3}$

Phase shift right $\pi/4$

Range $[-2, 2]$

Domain $(-\infty, \infty)$

65) $A = 4$

Period = π

Phase shift $\frac{1}{2}$ right

Domain $(-\infty, \infty)$

Range $[-4, 4]$

66) $A = 2$ $\quad Per = \frac{2\pi}{3}$ $\quad$ phase shift left $\frac{1}{3}$ $(-\frac{1}{3})$

Domain $(-\infty, \infty)$ $\quad$ Range $[-2, 2]$