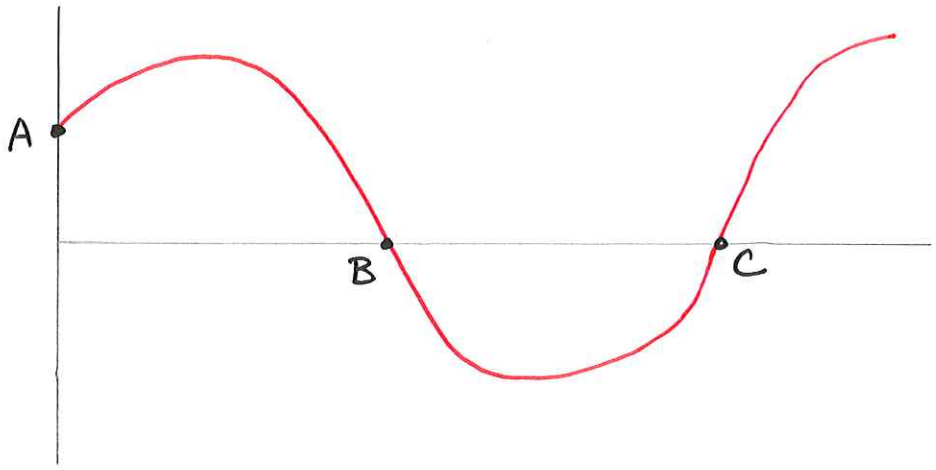
Year 1 Pure

Chapter 9 TRIGONOMETRIC FUNCTIONS (Graphs) ANSWERS

(1)



$y = \sin(0+30)$

$y = 1/2$

A $(0, 1/2)$

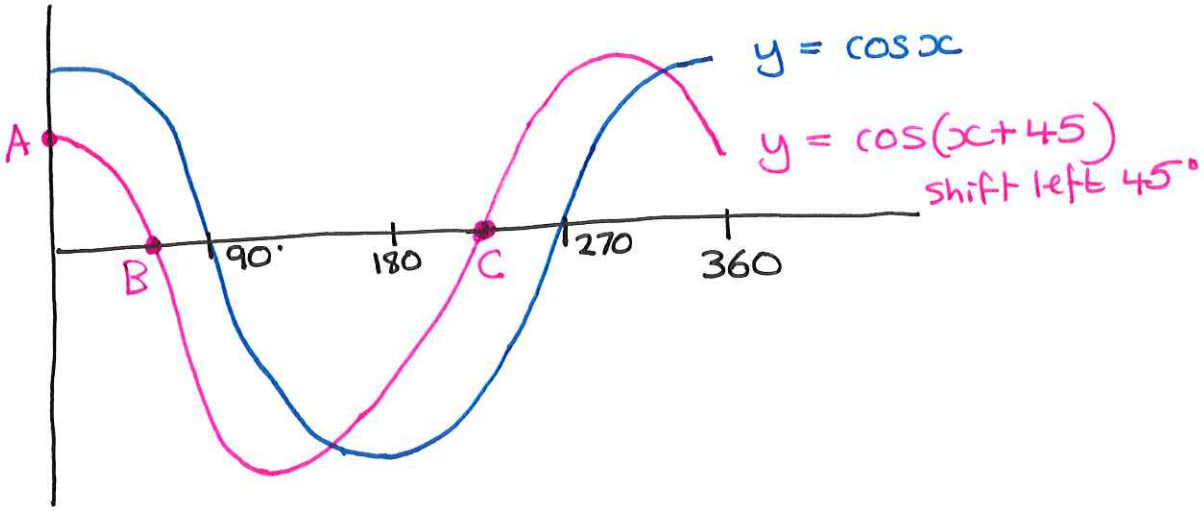
B $180 - 30^\circ = 150$

$(150, 0)$

C $360 - 30 = 330$

$(330, 0)$

2)



A $x = 0$

$y = \cos(0+45)$

$= \cos 45$

$= \frac{\sqrt{2}}{2}$

A $\left(0, \frac{\sqrt{2}}{2}\right)$

B $y = 0$

$x = 90 - 45 = 45°$

B $(45, 0)$

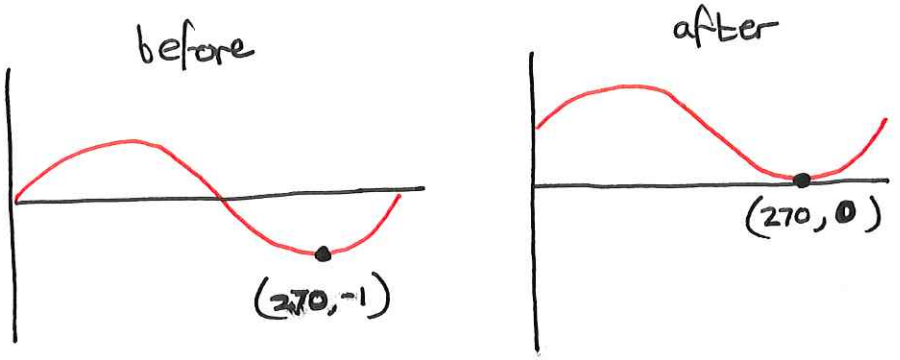
C $y = 0$

$x = 270 - 45 = 225°$

C $(225, 0)$

3)

a) i)



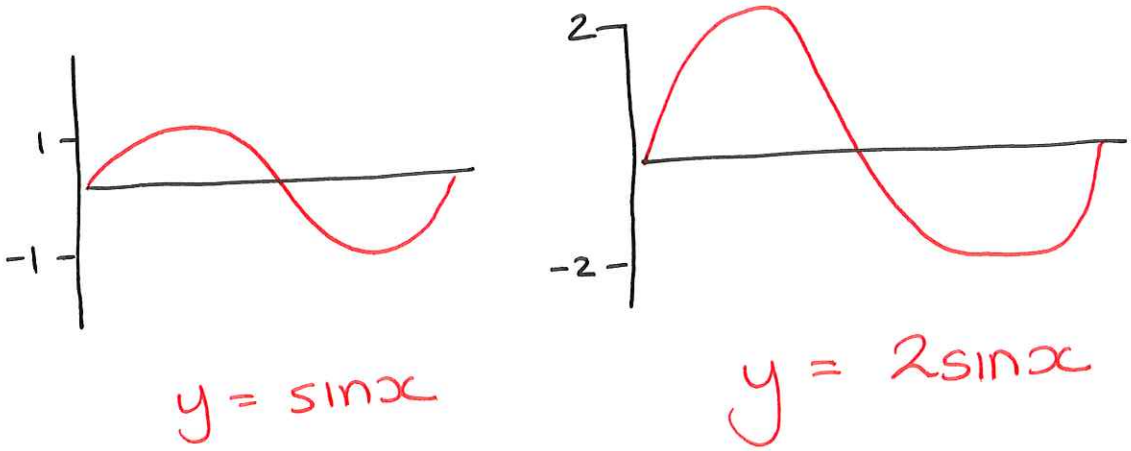
$y = \sin x$

$y = (\sin x) + 1$

or

$y = 1 + \sin x$

a) ii



$y = \sin x$

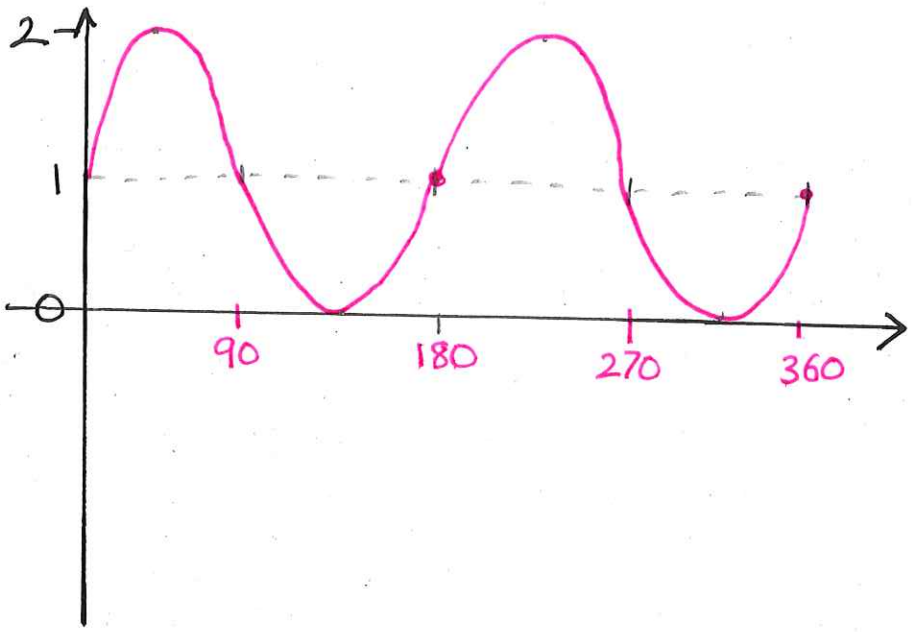
$y = 2\sin x$

b) stretch parallel to y axis (vertically) SF 3

stretch parallel to x axis (horizontally) SF 1/2

(4)

a)



b) (0, 1) (135, 0) (315, 0)

(5)

a) $\sqrt{3} = k\sin(0+60)$

$\sqrt{3} = k\sin(60)$

$k = \dfrac{\sqrt{3}}{\sin 60}$

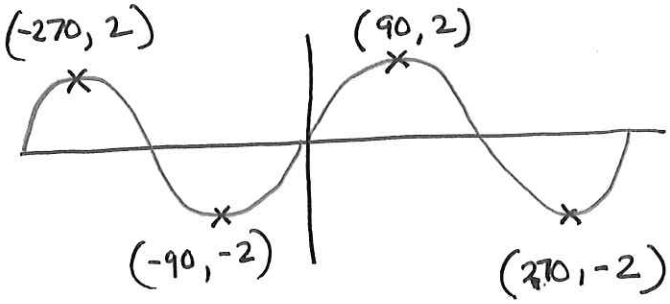
$k = 2$

b) $y = 2\sin(x+60)$

$p = 180 - 60 = \underline{120^\circ}$

$q = 360 - 60 = \underline{300^\circ}$

c) $y = 2\sin x$



hence

$y = 2(\sin + 60)$ ← 60°

(-330, 2) (-150, -2) (30, 2) (210, -2)