

<b>Complete Solutions to Exercise 4(b)</b>
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1.

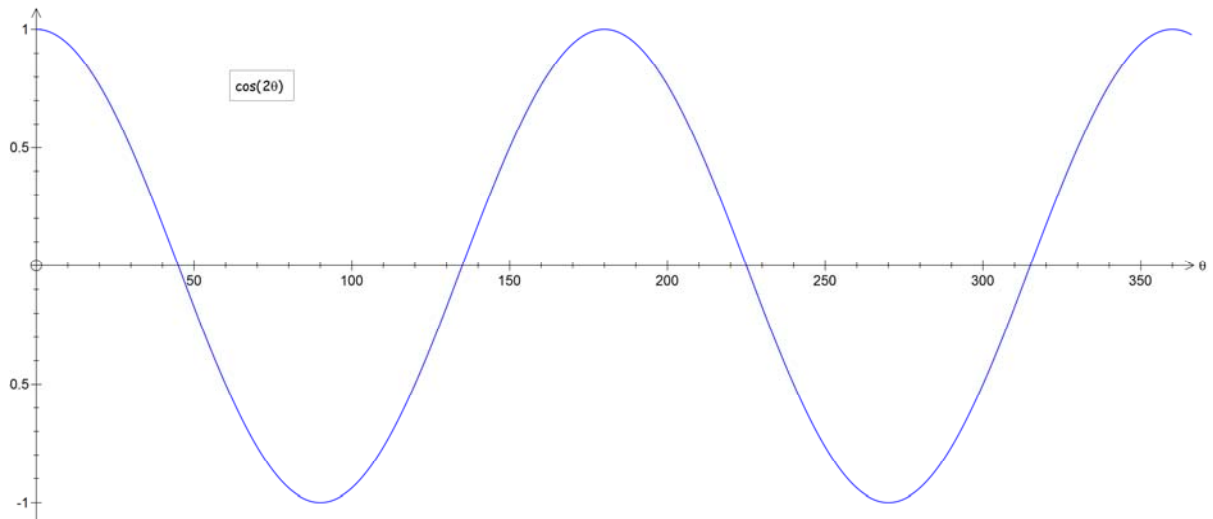
$\theta$	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°	360°
$y = \cos(\theta)$	1	0.866	0.5	0	-0.5	-0.866	-1	-0.866	-0.5	0	0.5	0.866	1

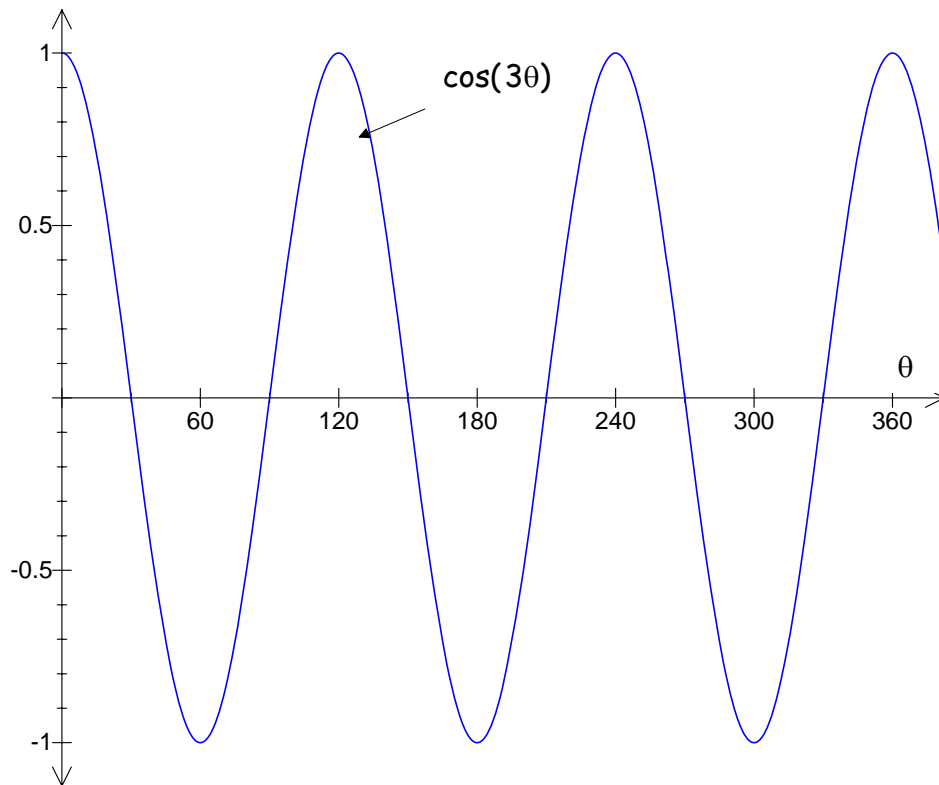
See Fig 21(a).

2.

$\theta$	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°
$y = \tan(\theta)$	0	0.577	1.732	undef	-1.732	-0.577	0	0.577	1.732	undef
	300°	330°	360°							
	-1.732	-0.577	0							

See Fig 21(b).

3.(a) The  $\cos(2\theta)$  graph completes 2 cycles between 0° to 360°(b) The graph of  $\sin(\theta + 90^\circ)$  is the same as cosine graph (Fig 21(a)).(c) Since  $\tan(\theta)$  repeats every  $180^\circ$  so  $\tan(\theta - 180^\circ)$  is the same as  $\tan(\theta)$  (Fig 21(b)).(d) Similarly  $\sin(\theta)$  graph repeats every  $360^\circ$  so  $\sin(\theta + 360^\circ)$  is the sine graph (Fig 20).(e) The  $\cos(3\theta)$  is the cosine graph which completes three waveforms between 0 and  $360^\circ$ :



(f) The  $\tan(2\theta)$  graph is given by:

