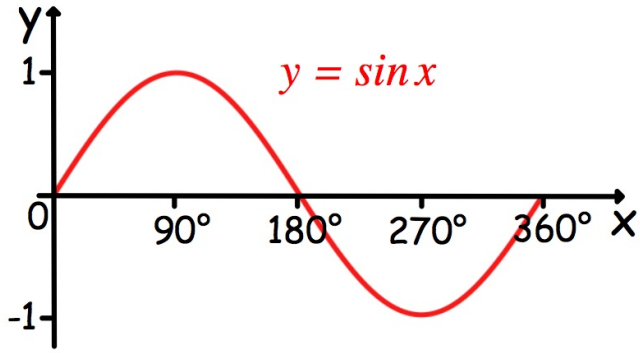
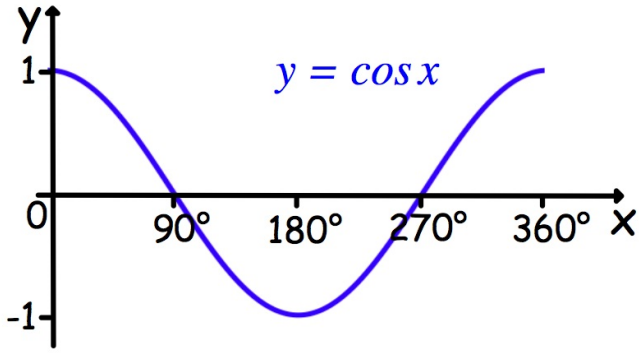
TRIG. GRAPHS



Max TP (90° , 1)
Min TP (270° , -1)

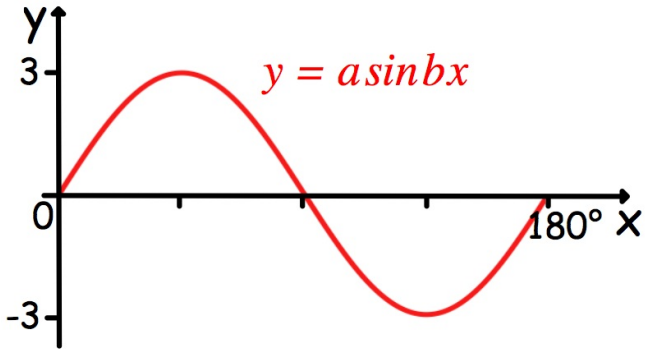


Max TP (0° , 1)
Min TP (180° , -1)

Ex 1

(a) Complete the scale markings on the x-axis.
(b) Write the equation of the graph.
(c) Write the coordinates of the max. and min. TPs.

1.



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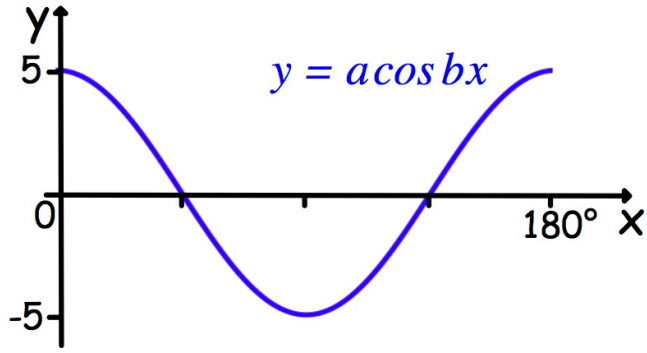

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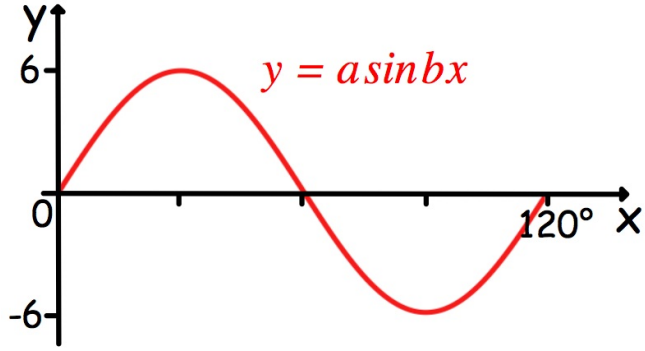

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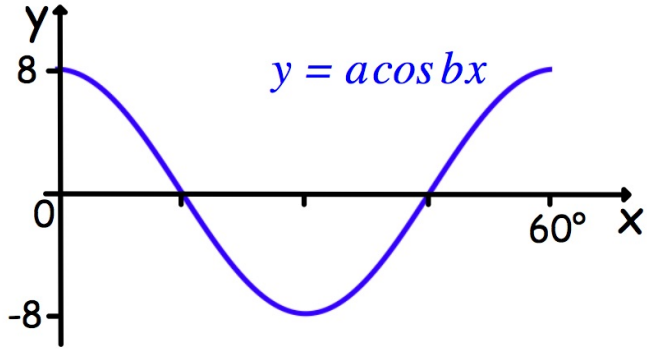

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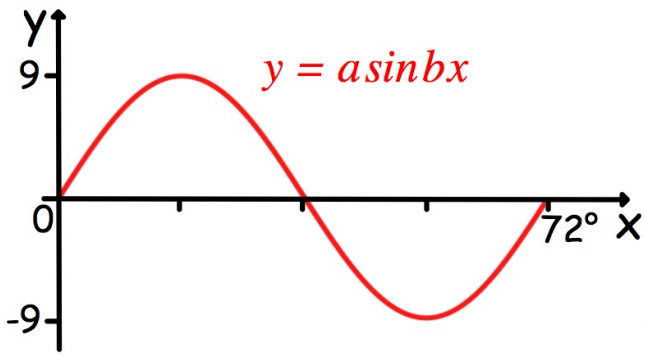

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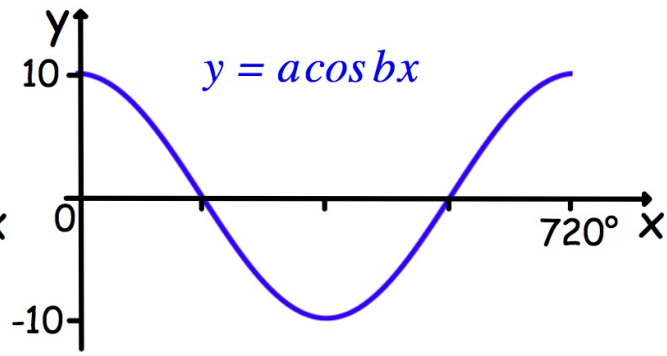

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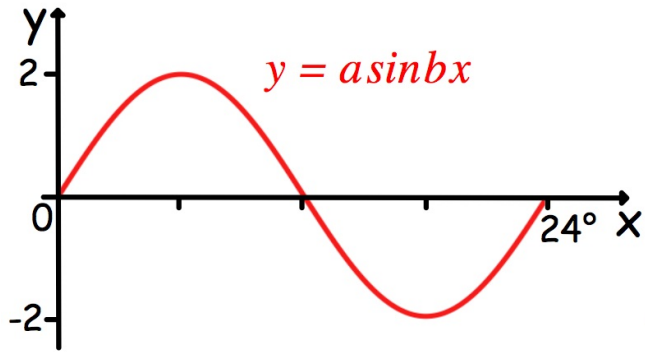

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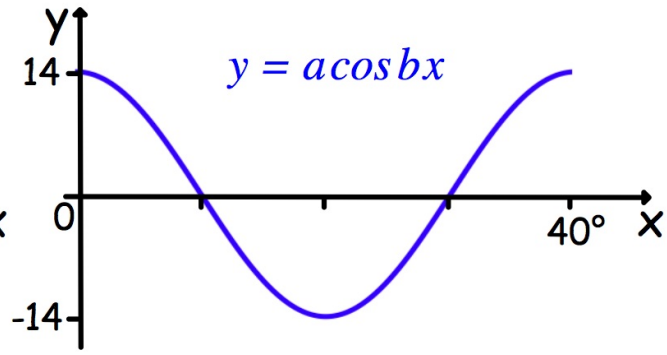

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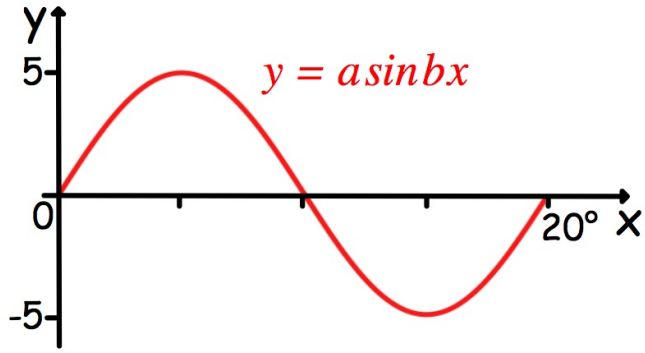

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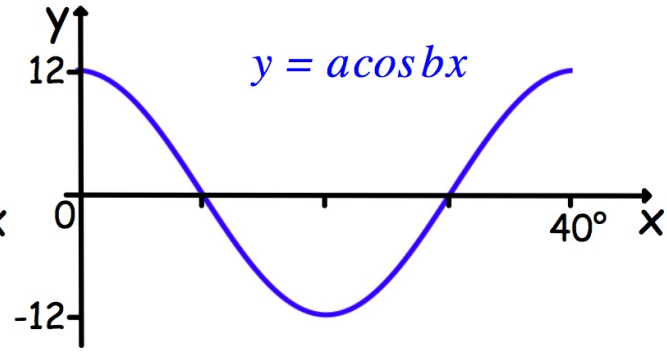

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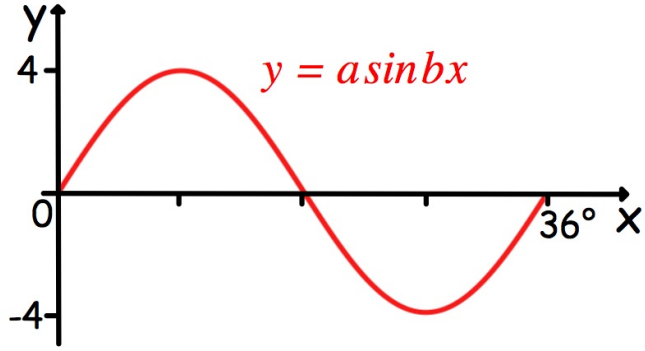

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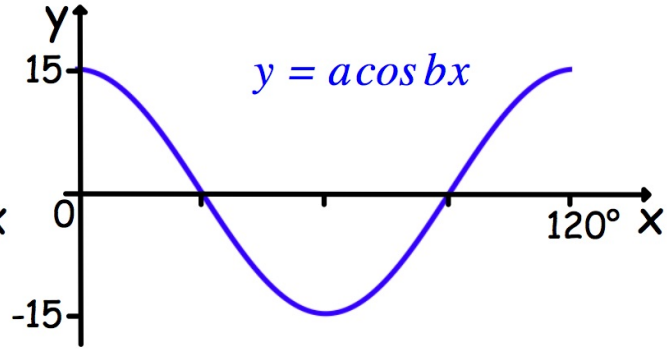
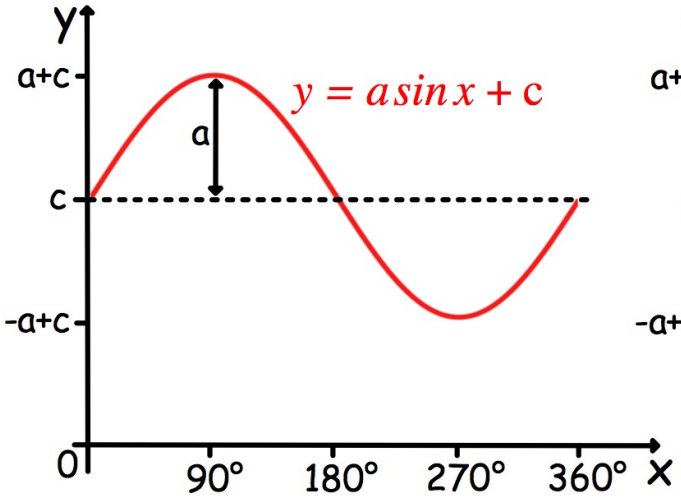
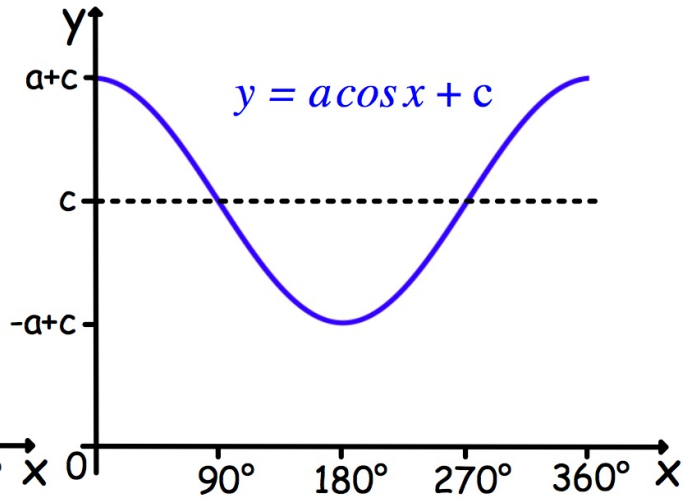
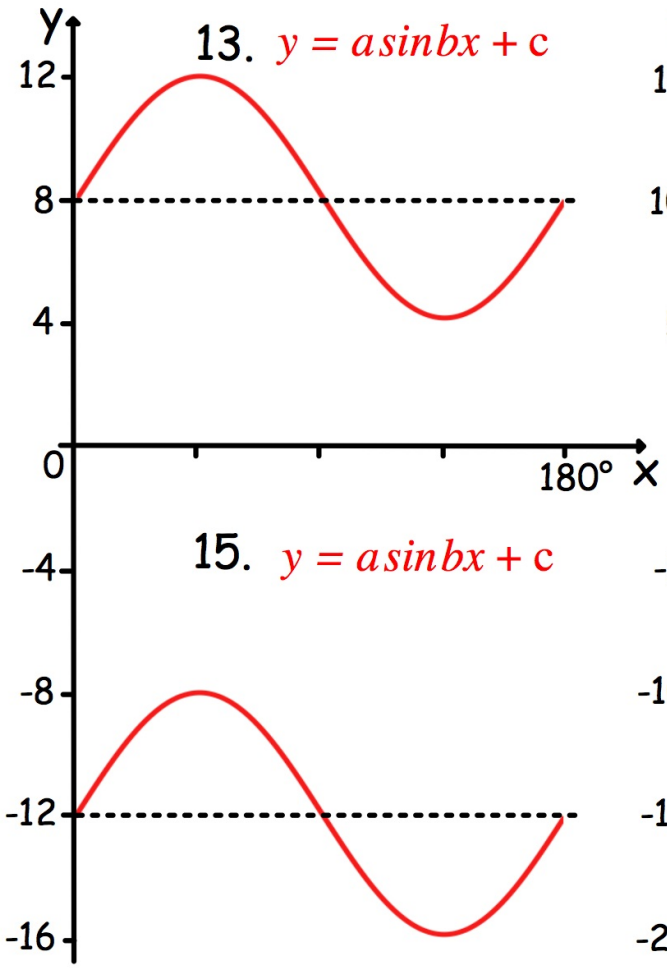
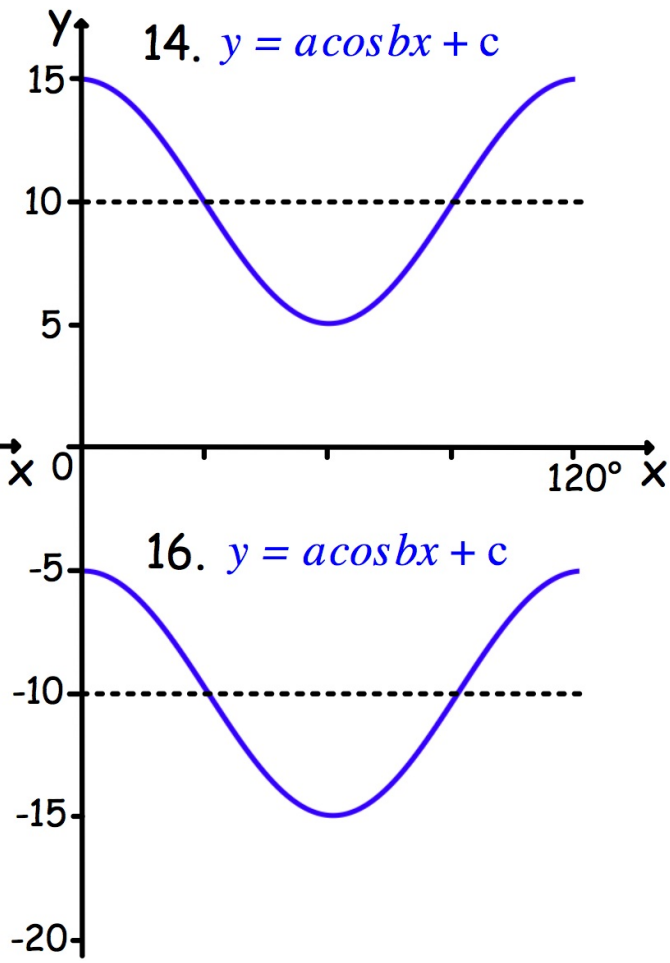


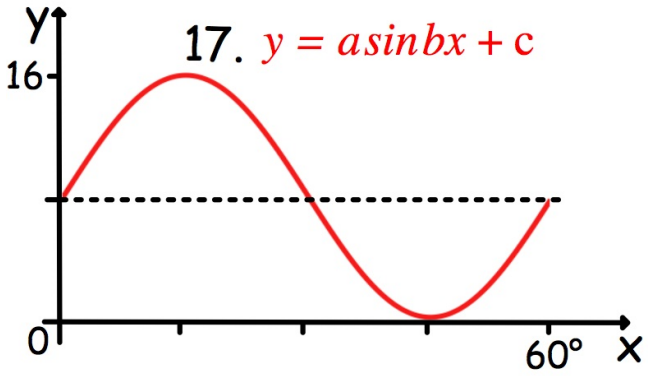

y
a+c
c
-a+c
0
a
$y = a\sin x + c$
90°
180°
270°
360°
x


y
a+c
c
-a+c
0
$y = a\cos x + c$
90°
180°
270°
360°
x

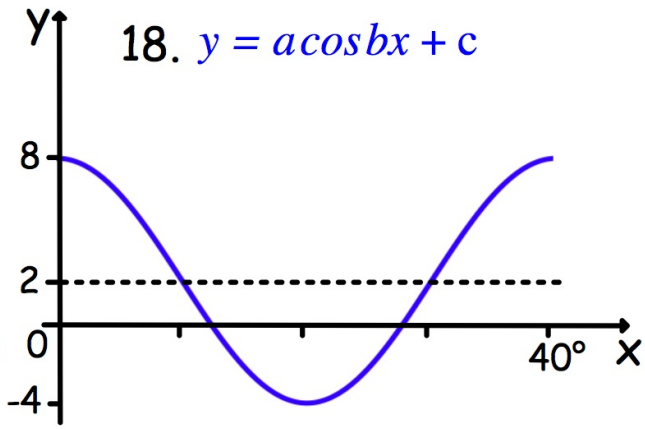

y
12
8
4
0
-4
-8
-12
-16
13. $y = a\sin bx + c$
180°
x
15. $y = a\sin bx + c$


y
15
10
5
0
-5
-10
-15
-20
14. $y = a\cos bx + c$
120°
x
16. $y = a\cos bx + c$

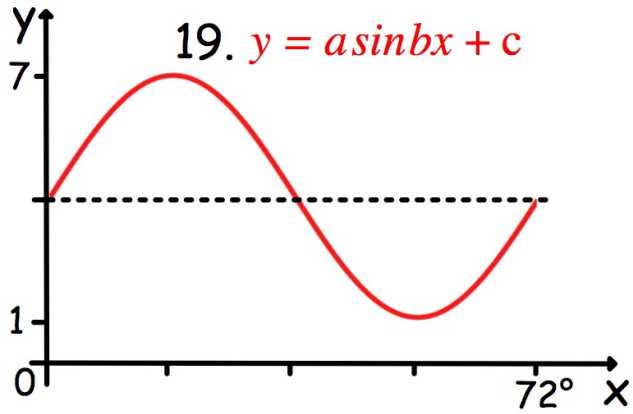
17. $y = a\sin bx + c$



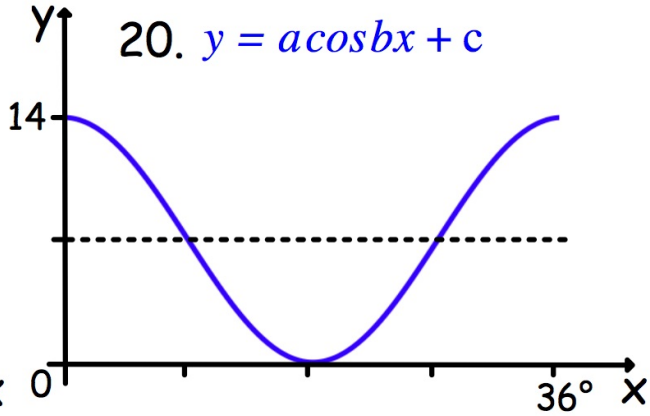
18. $y = a\cos bx + c$



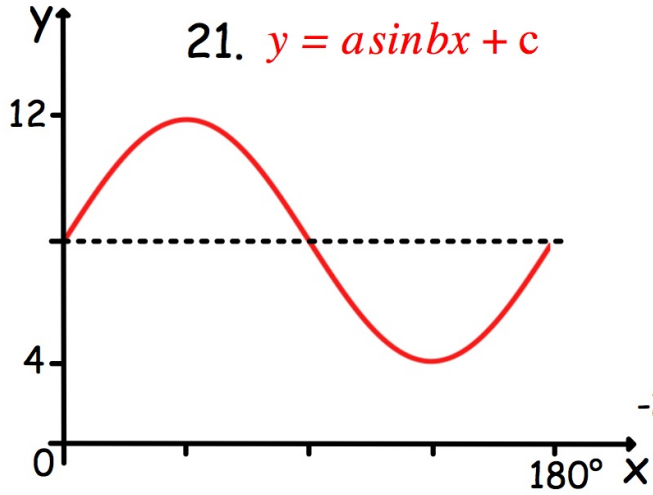
19. $y = a\sin bx + c$



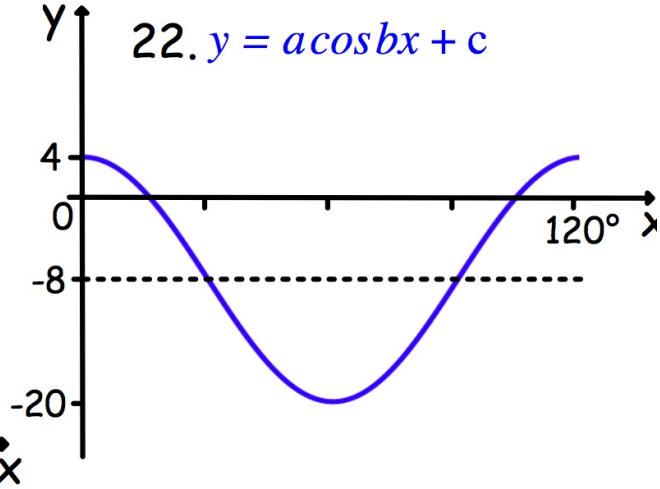
20. $y = a\cos bx + c$



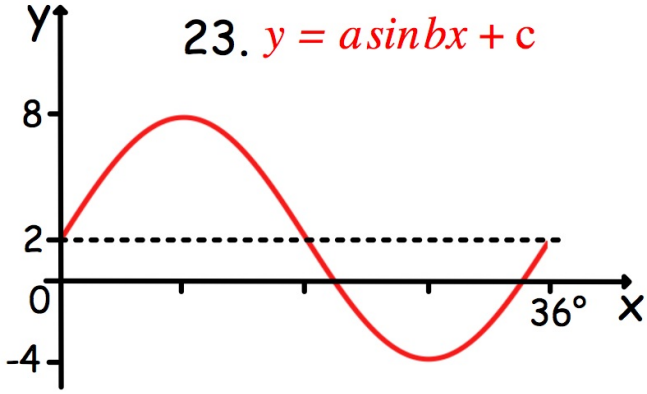
21. $y = a\sin bx + c$



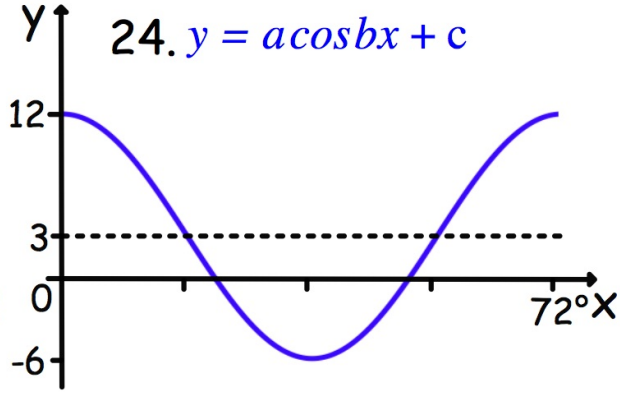
22. $y = a\cos bx + c$

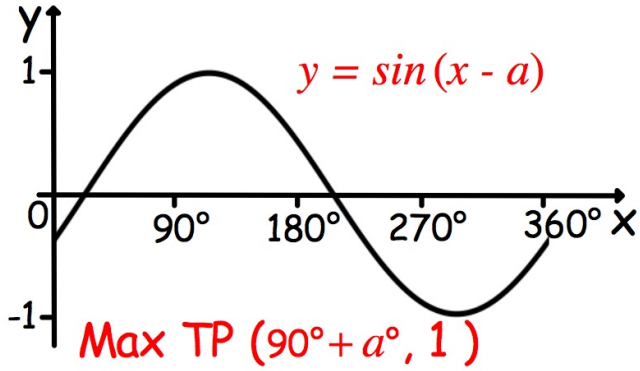


23. $y = a\sin bx + c$



24. $y = a\cos bx + c$

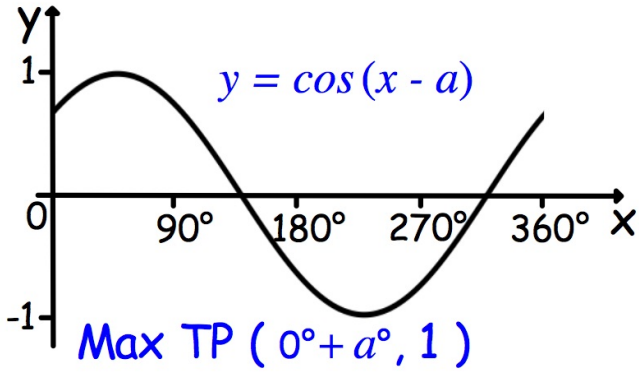




$y = sin(x - a)$

Max TP $(90° + a°, 1)$

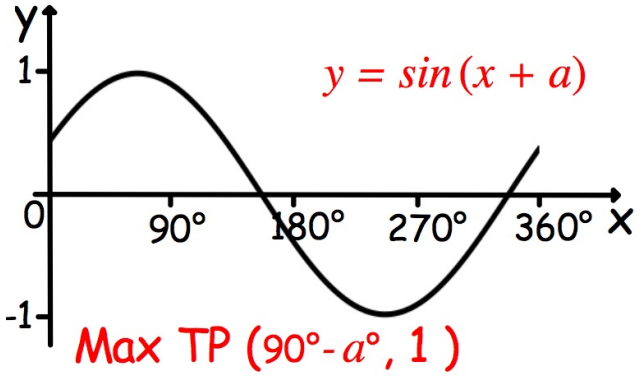
Min TP $(270° + a°, -1)$



$y = cos(x - a)$

Max TP $(0° + a°, 1)$

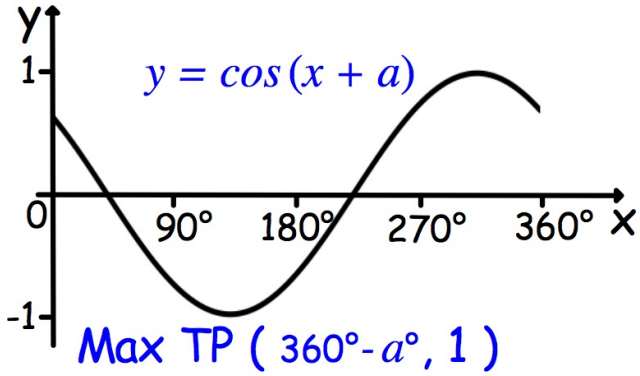
Min TP $(180° + a°, -1)$



$y = sin(x + a)$

Max TP $(90° - a°, 1)$

Min TP $(270° - a°, -1)$

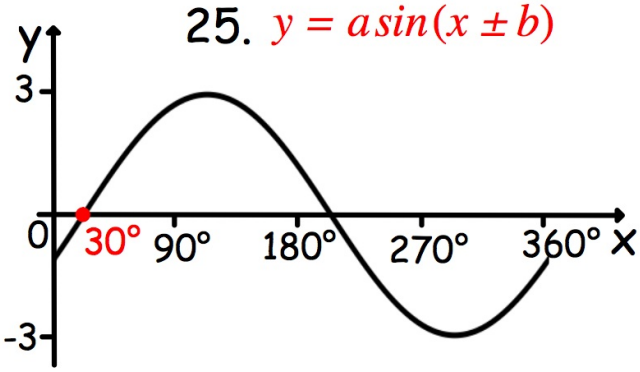


$y = cos(x + a)$

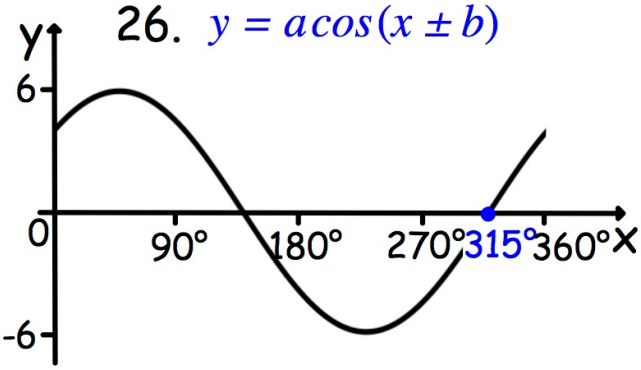
Max TP $(360° - a°, 1)$

Min TP $(180° - a°, -1)$

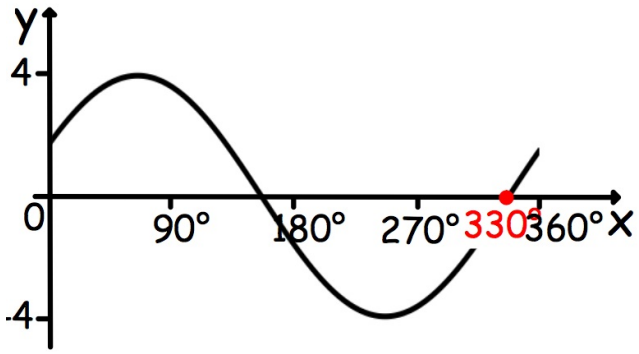
25. $y = asin(x \pm b)$



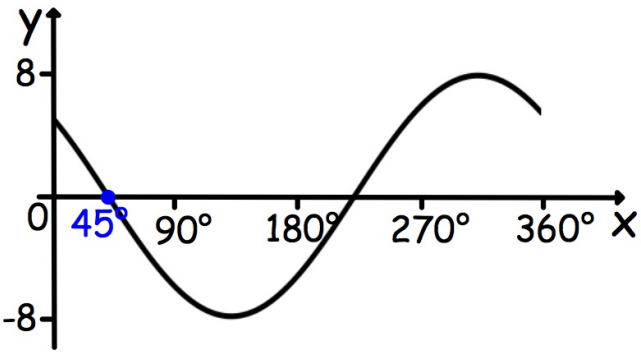
26. $y = acos(x \pm b)$



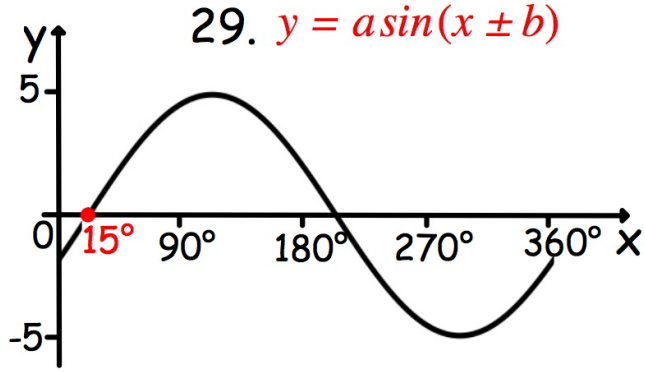
27. $y = asin(x \pm b)$



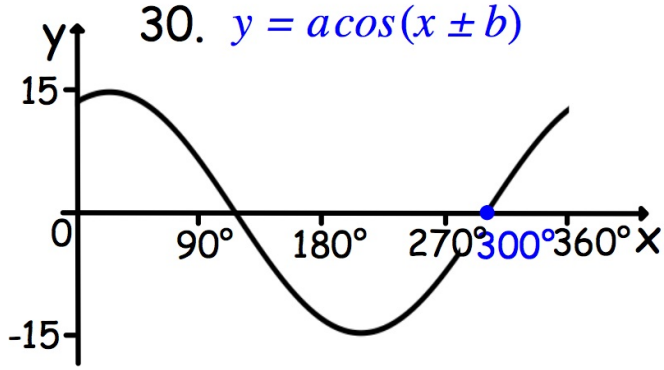
28. $y = acos(x \pm b)$



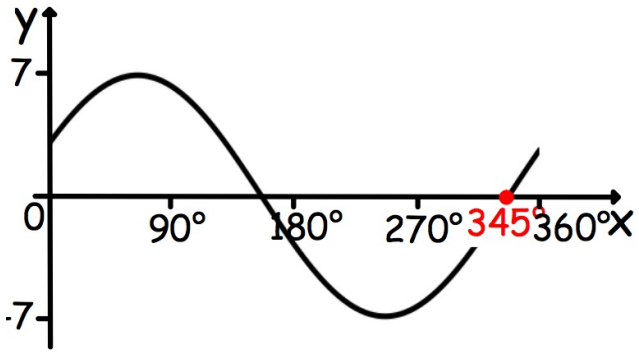
29. $y = a\sin(x \pm b)$



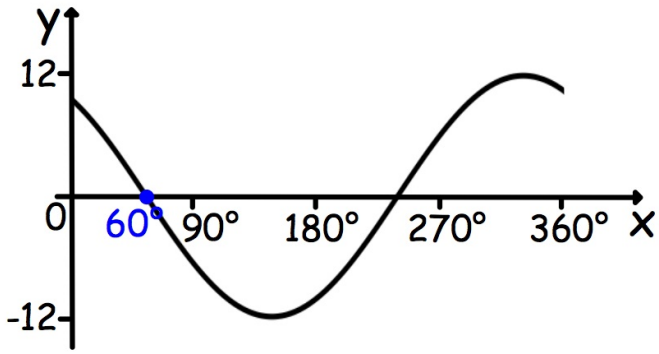
30. $y = a\cos(x \pm b)$



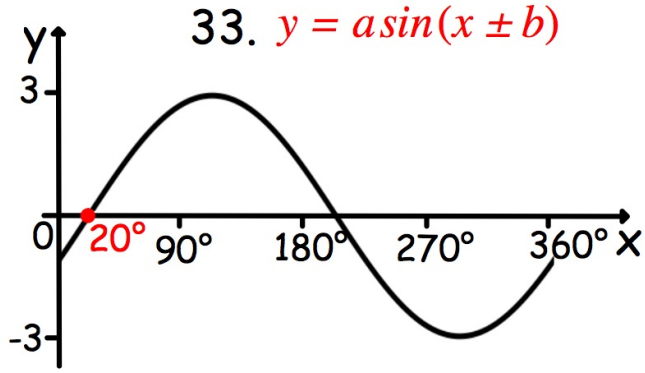
31. $y = a\sin(x \pm b)$



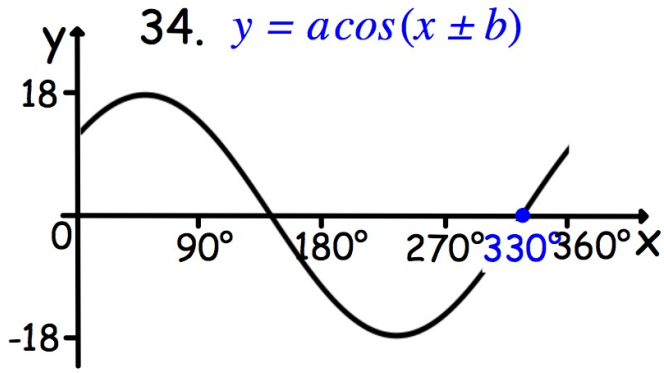
32. $y = a\cos(x \pm b)$



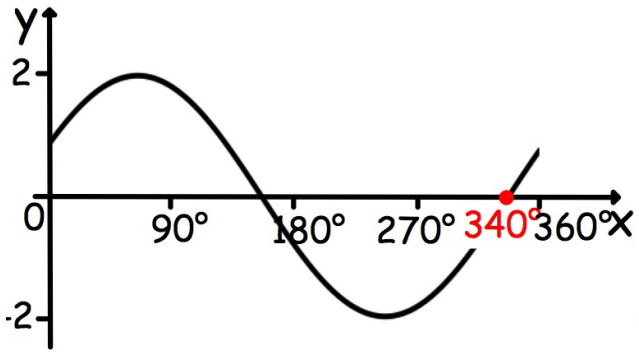
33. $y = a\sin(x \pm b)$



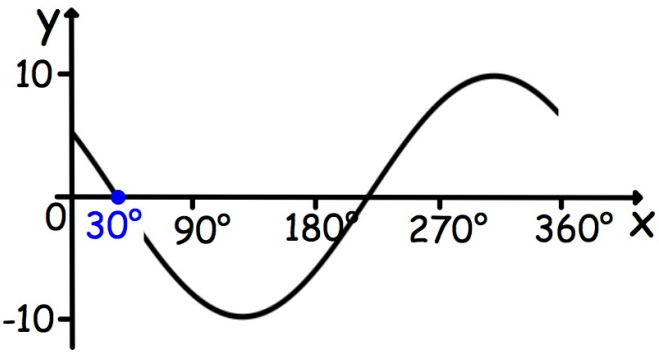
34. $y = a\cos(x \pm b)$



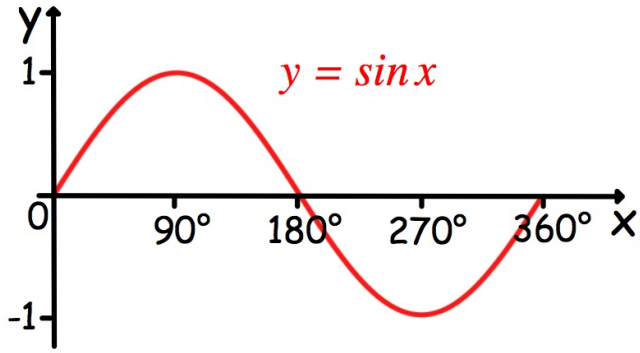
35. $y = a\sin(x \pm b)$



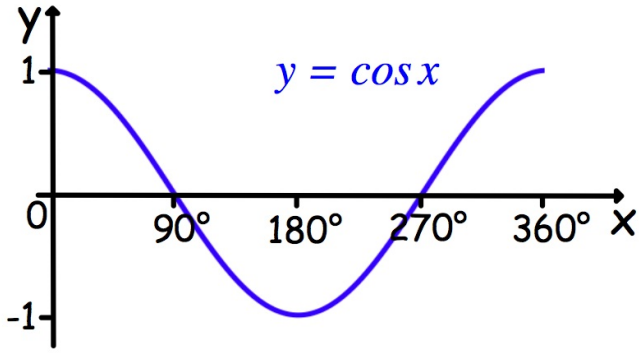
36. $y = a\cos(x \pm b)$



TRIG. GRAPHS



Max TP (90° , 1)
Min TP (270° , -1)

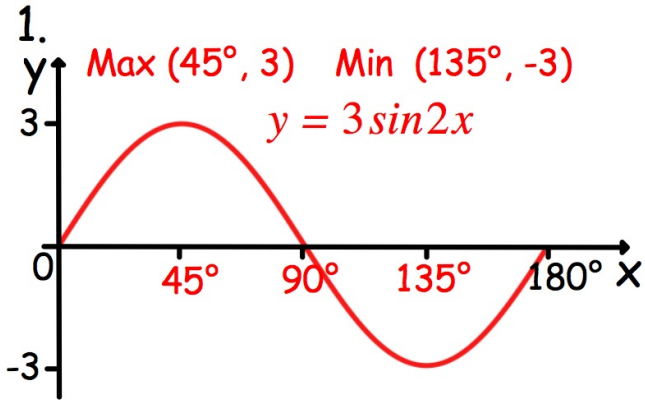


Max TP (0° , 1)
Min TP (180° , -1)

Ex 1

(a) Complete the scale markings on the x-axis.
(b) Write the equation of the graph.
(c) Write the coordinates of the max. and min. TPs.

1.



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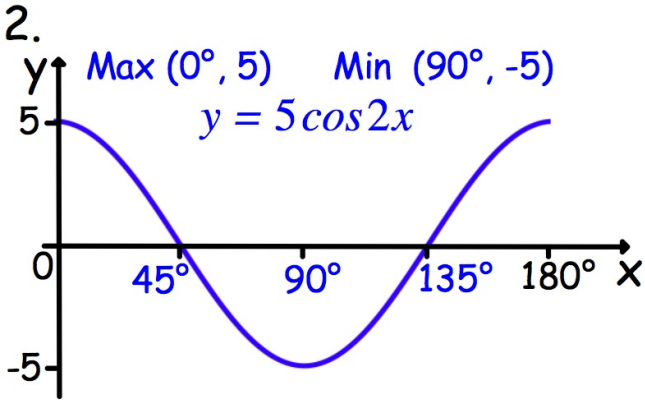

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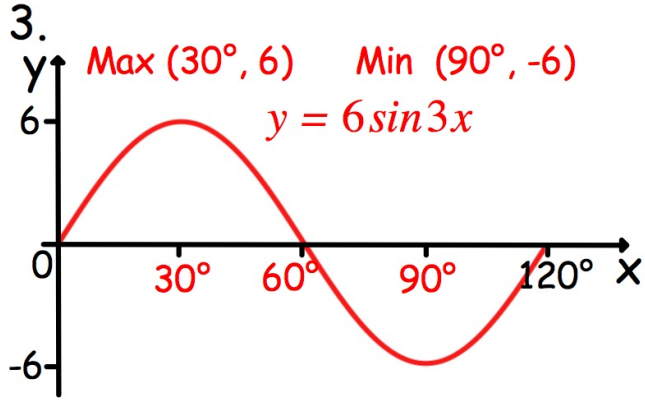
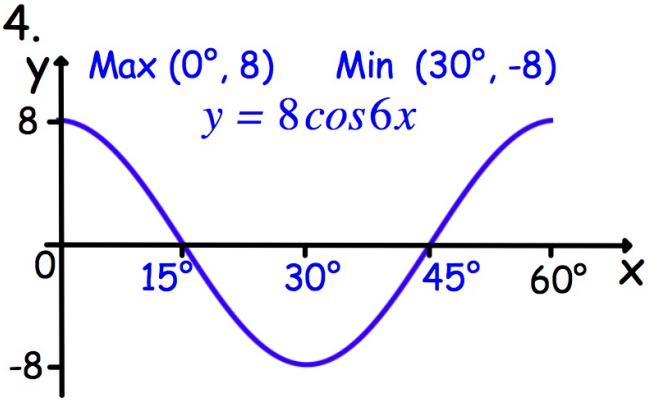
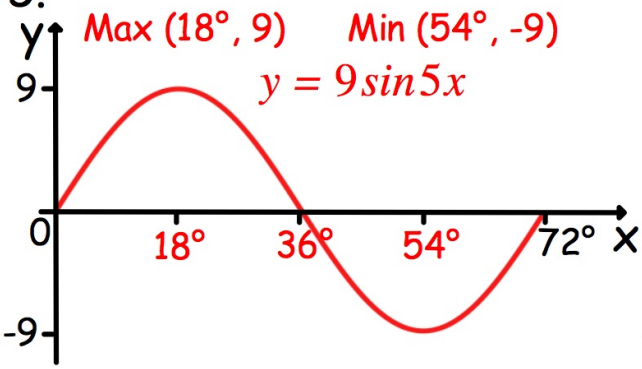


4.



5.



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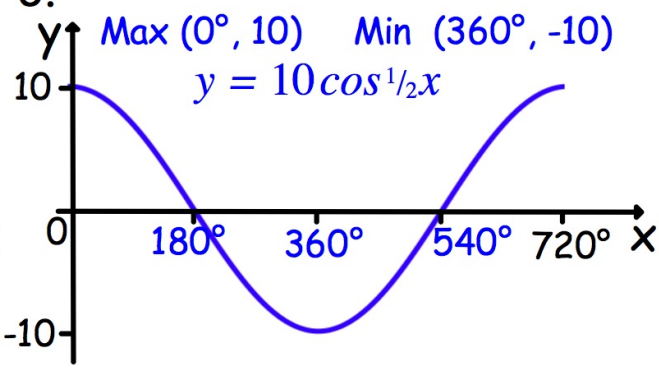
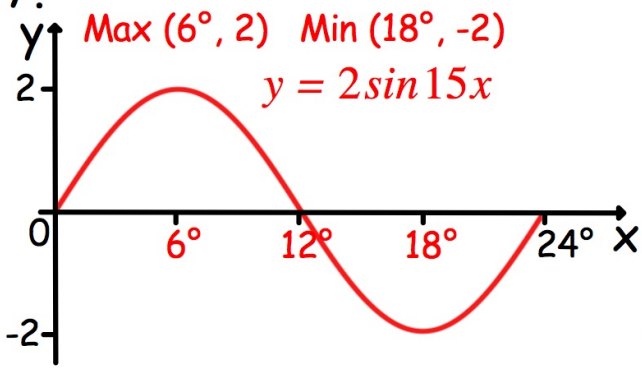


7.



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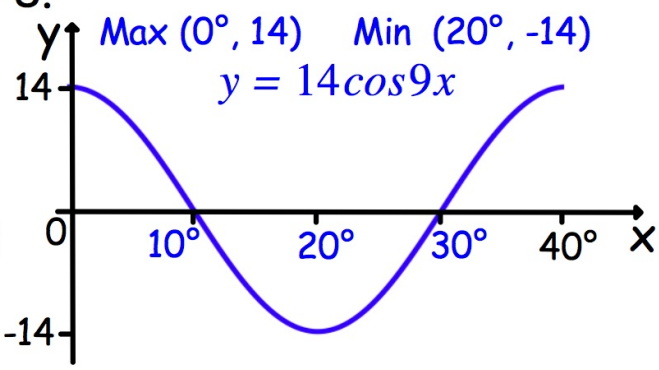

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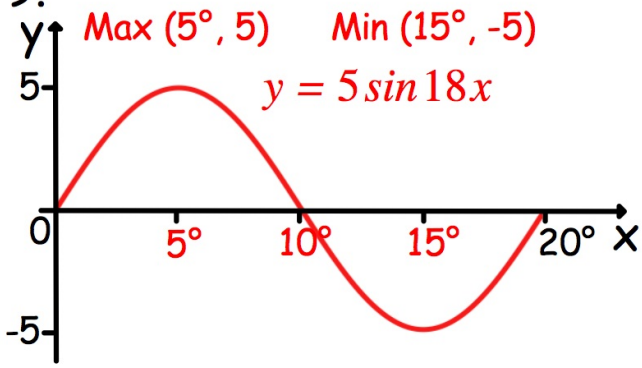

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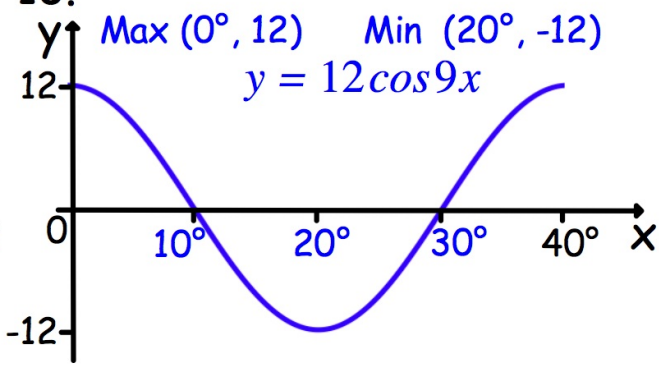

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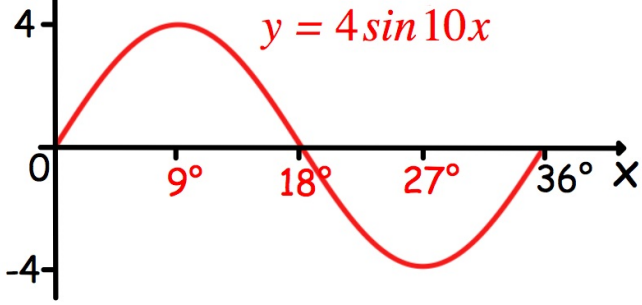

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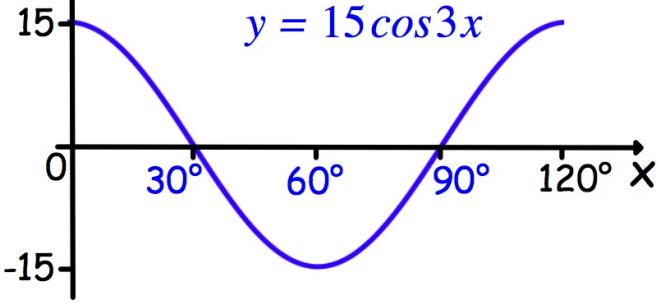
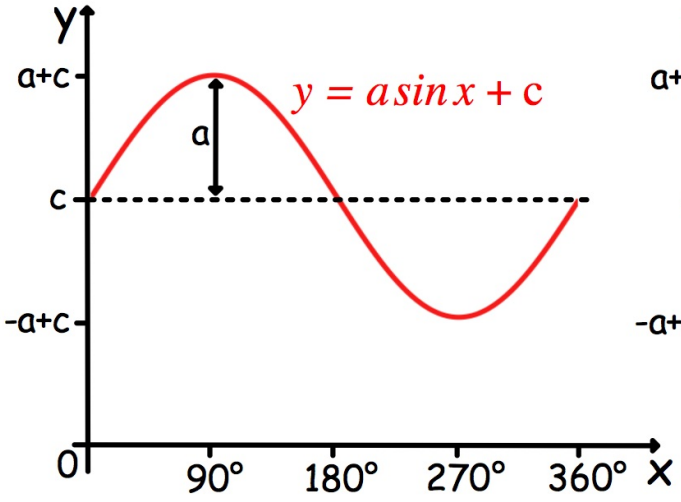
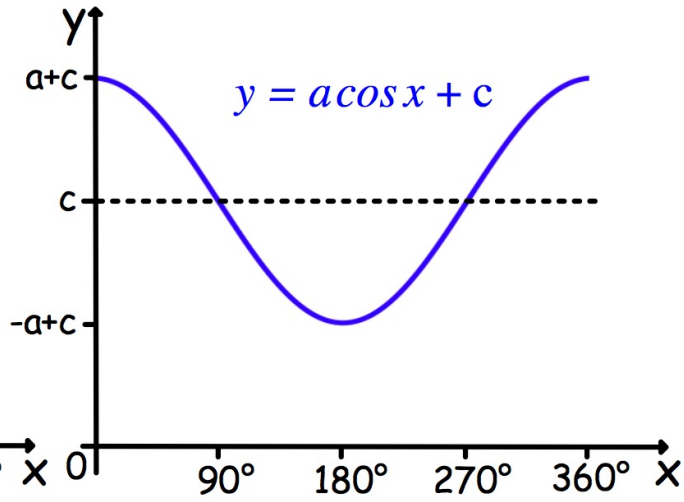
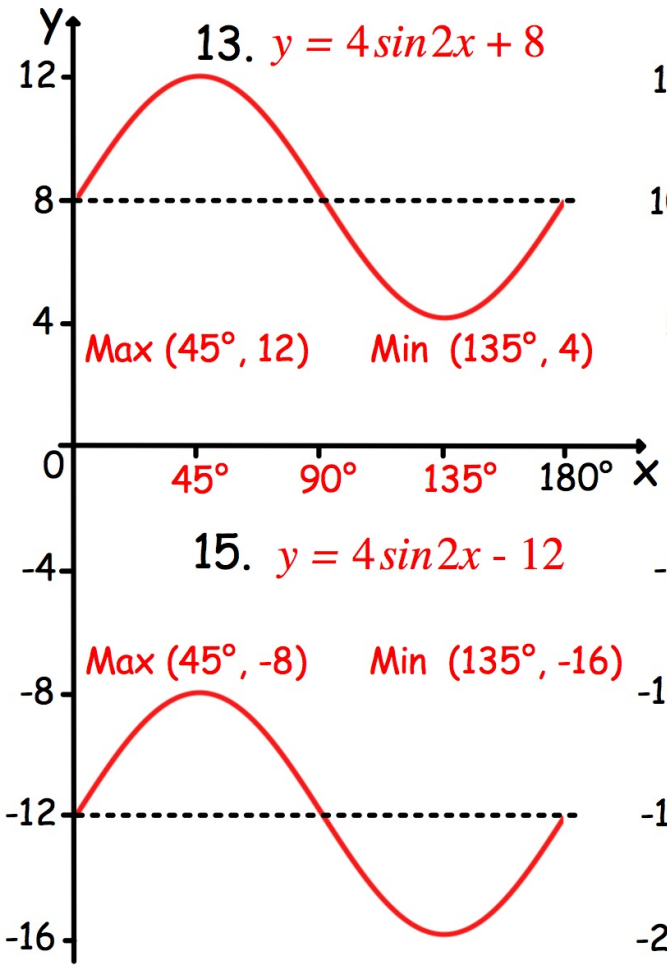
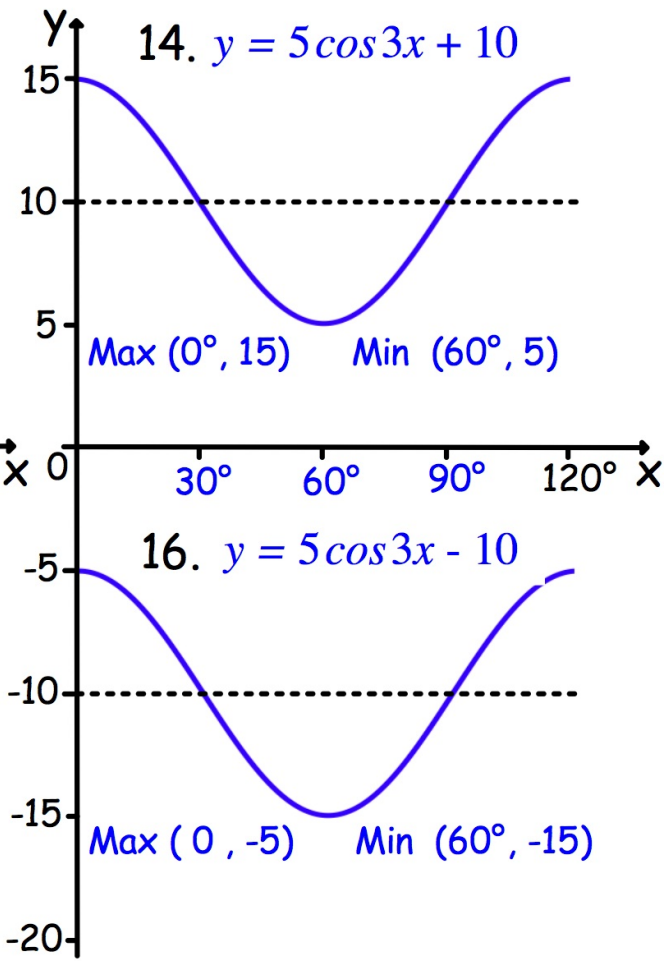



y
a+c
c
-a+c
0
a
$y = a\sin x + c$
90°
180°
270°
360°
x

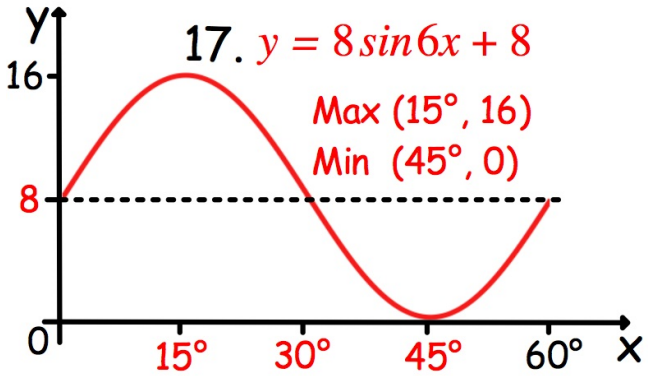

y
a+c
c
-a+c
0
$y = a\cos x + c$
90°
180°
270°
360°
x


y
13. $y = 4\sin 2x + 8$
12
8
4
0
-4
-8
-12
-16
Max (45°, 12)
Min (135°, 4)
45°
90°
135°
180°
x
15. $y = 4\sin 2x - 12$
Max (45°, -8)
Min (135°, -16)


y
14. $y = 5\cos 3x + 10$
15
10
5
0
-5
-10
-15
-20
Max (0°, 15)
Min (60°, 5)
30°
60°
90°
120°
x
16. $y = 5\cos 3x - 10$
Max (0 , -5)
Min (60°, -15)

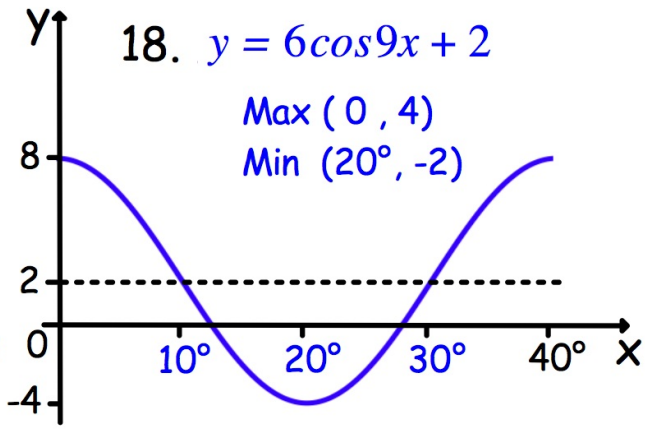
17. $y = 8\sin 6x + 8$

Max (15°, 16)
Min (45°, 0)



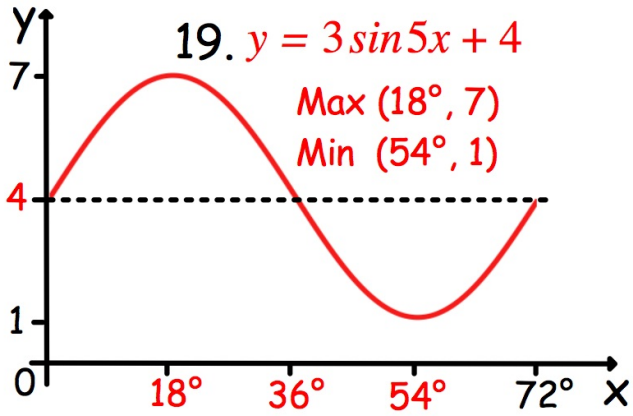
18. $y = 6\cos 9x + 2$

Max (0 , 4)
Min (20°, -2)



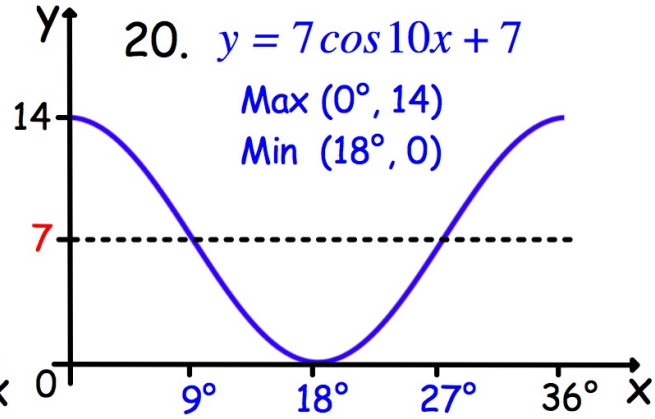
19. $y = 3\sin 5x + 4$

Max (18°, 7)
Min (54°, 1)



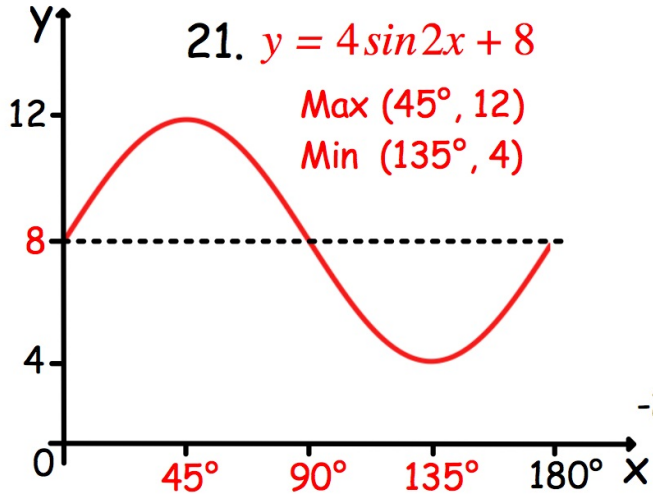
20. $y = 7\cos 10x + 7$

Max (0°, 14)
Min (18°, 0)



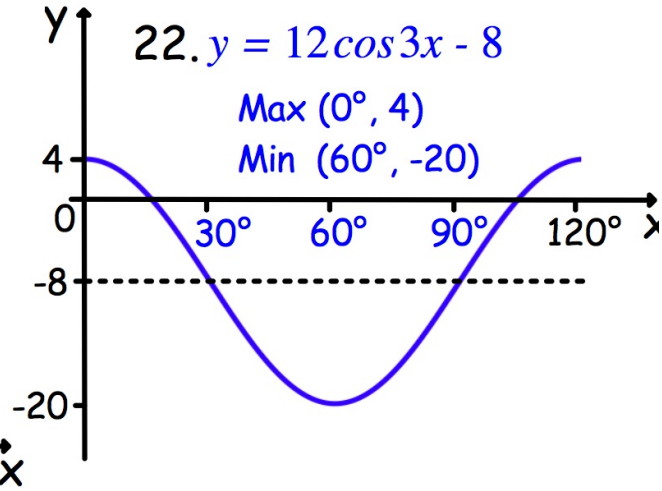
21. $y = 4\sin 2x + 8$

Max (45°, 12)
Min (135°, 4)



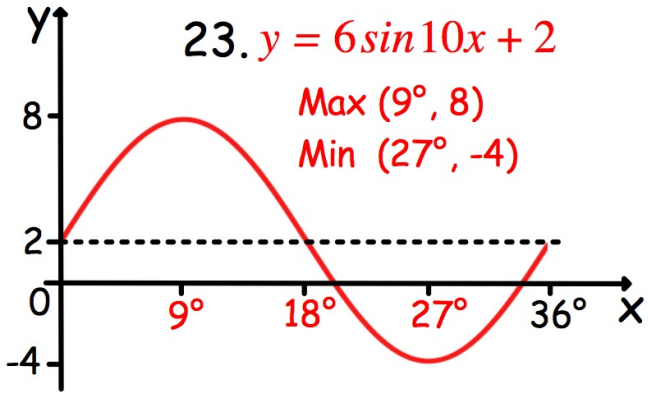
22. $y = 12\cos 3x - 8$

Max (0°, 4)
Min (60°, -20)



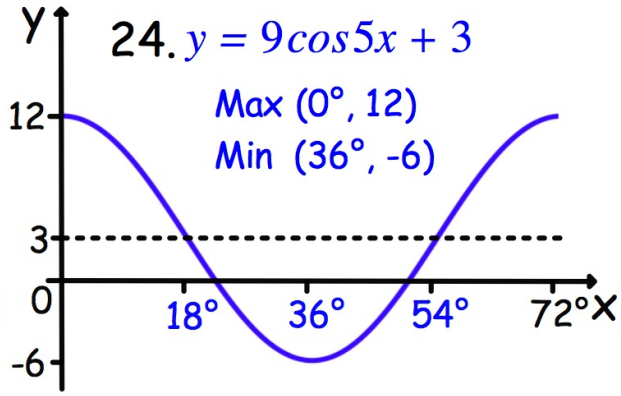
23. $y = 6\sin 10x + 2$

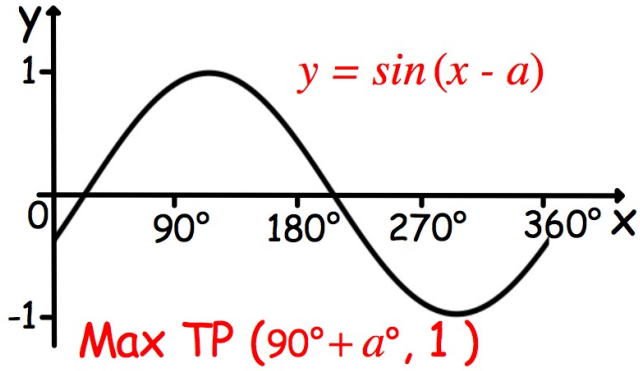
Max (9°, 8)
Min (27°, -4)



24. $y = 9\cos 5x + 3$

Max (0°, 12)
Min (36°, -6)

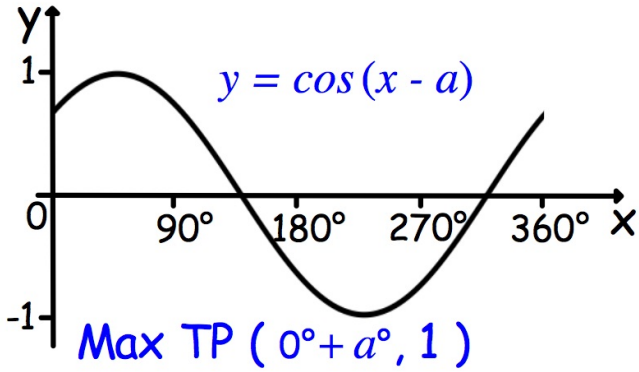




$y = sin(x - a)$

Max TP ($90° + a°$, 1)

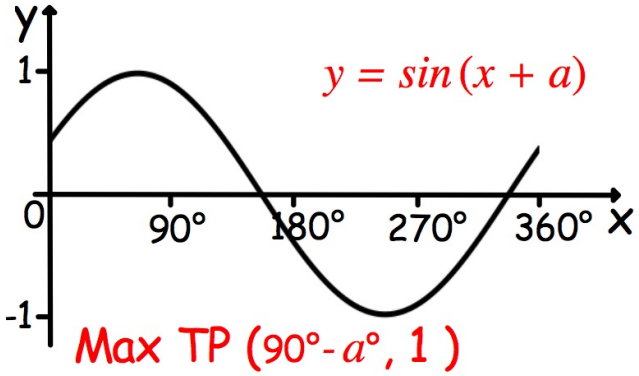
Min TP ($270° + a°$, -1)



$y = cos(x - a)$

Max TP ($0° + a°$, 1)

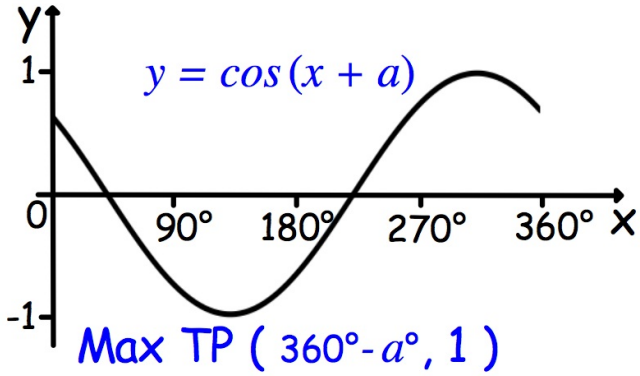
Min TP ($180° + a°$, -1)



$y = sin(x + a)$

Max TP ($90° - a°$, 1)

Min TP ($270° - a°$, -1)

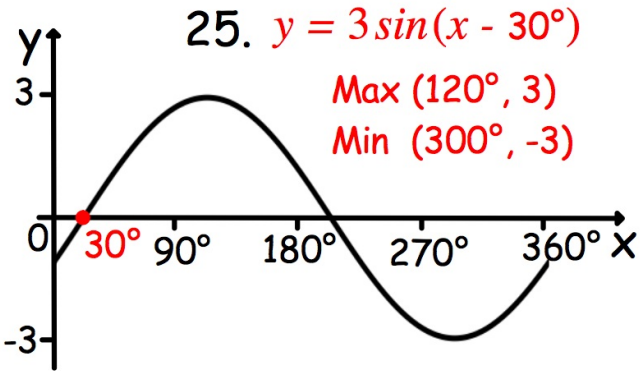


$y = cos(x + a)$

Max TP ($360° - a°$, 1)

Min TP ($180° - a°$, -1)

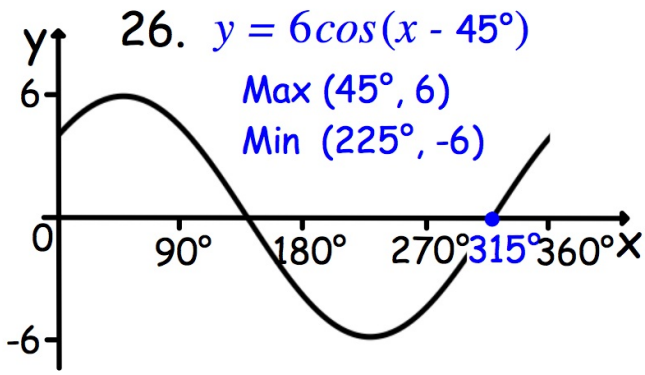
25. $y = 3sin(x - 30°)$



Max (120°, 3)

Min (300°, -3)

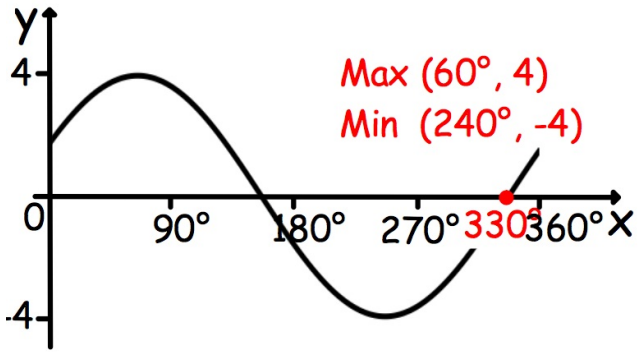
26. $y = 6cos(x - 45°)$



Max (45°, 6)

Min (225°, -6)

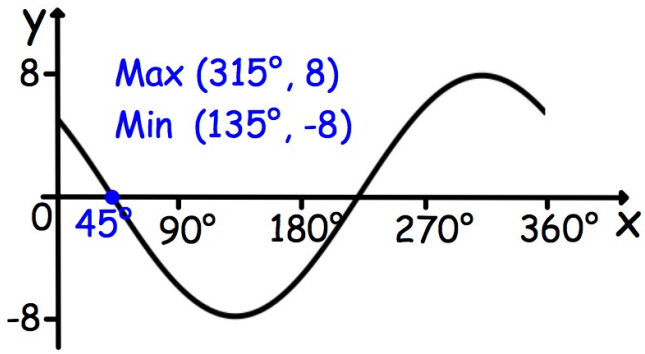
27. $y = 4sin(x + 30°)$



Max (60°, 4)

Min (240°, -4)

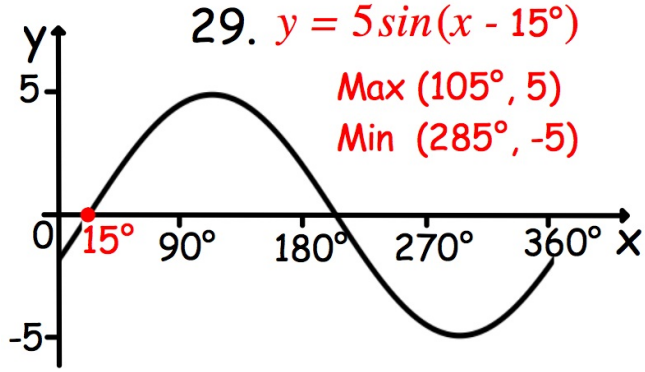
28. $y = 8cos(x + 45°)$



Max (315°, 8)

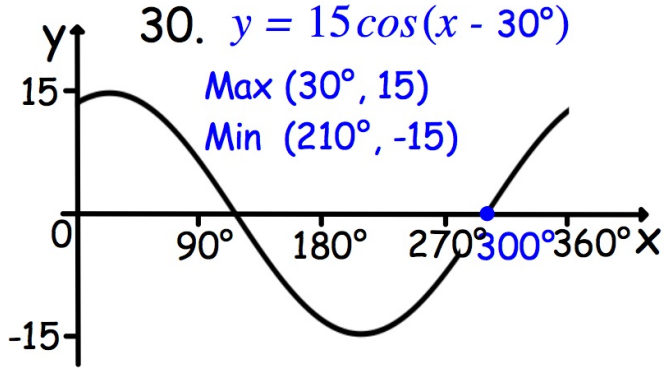
Min (135°, -8)

29. $y = 5\sin(x - 15°)$



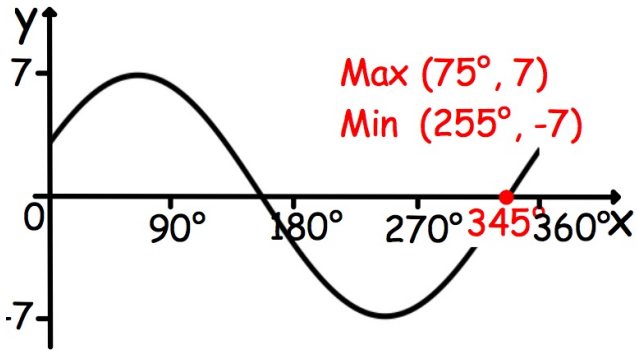
Max (105°, 5)
Min (285°, -5)

30. $y = 15\cos(x - 30°)$



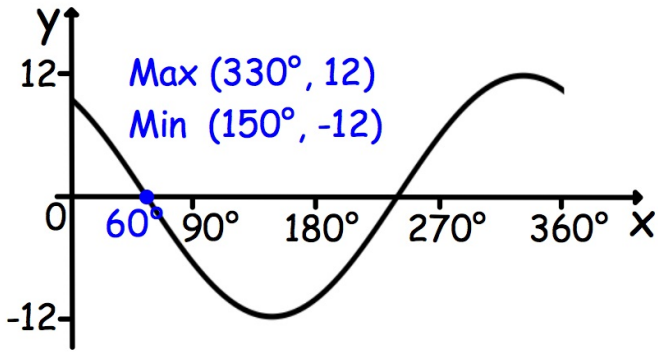
Max (30°, 15)
Min (210°, -15)

31. $y = 7\sin(x + 15°)$



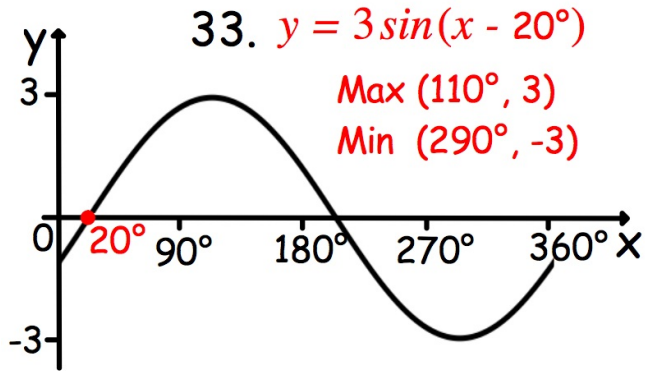
Max (75°, 7)
Min (255°, -7)

32. $y = 12\cos(x + 30°)$



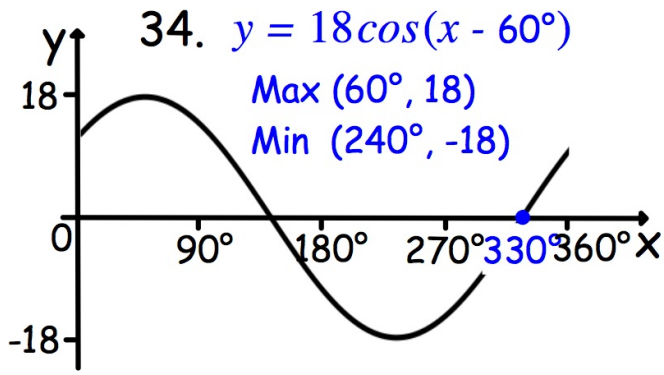
Max (330°, 12)
Min (150°, -12)

33. $y = 3\sin(x - 20°)$



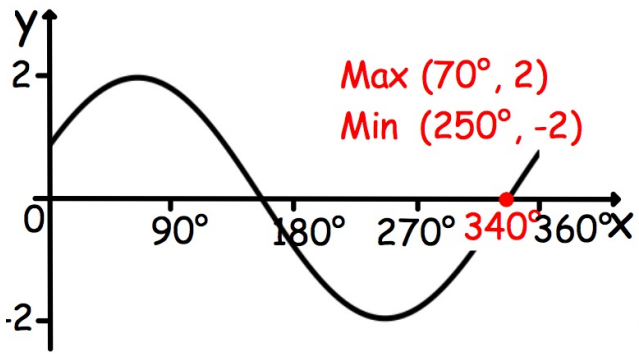
Max (110°, 3)
Min (290°, -3)

34. $y = 18\cos(x - 60°)$



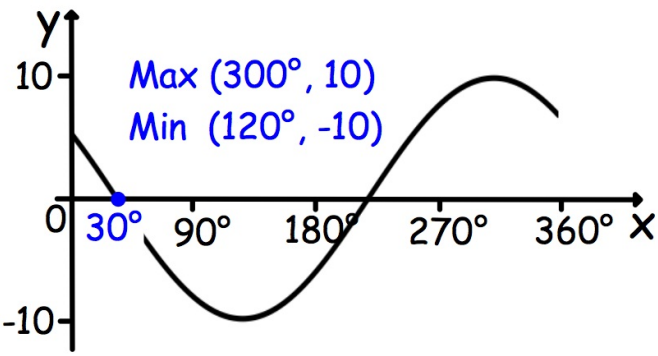
Max (60°, 18)
Min (240°, -18)

35. $y = 2\sin(x + 20°)$



Max (70°, 2)
Min (250°, -2)

36. $y = 10\cos(x + 60°)$



Max (300°, 10)
Min (120°, -10)