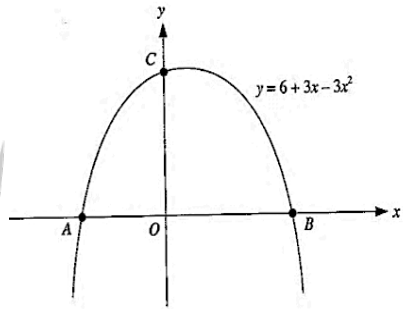
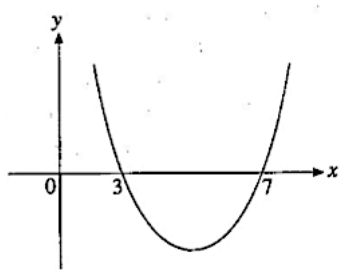


Must Know Questions To Ace Quadratic Graphs & Equations

1.	<p>Solve the following equations.</p> <p>a) $1 - 2x = 15x^2$</p> <p>b) $(x - 3)^2 = \frac{4}{9}$</p> <p>c) $4x^2 - 6(x + 1) = 3x + 7$</p>
2.	<p>If $-3y^2 + 2x^2 - 5xy = 0$, find the possible values of $\frac{x}{y}$.</p>
3.	<p>The curve $y = 6 + 3x - 3x^2$ cuts the x-axis at A and B, and the y-axis at C.</p> <p>a) Find the coordinates of A, B and C.</p> <p>b) Write down the equation of the line of symmetry.</p> <p>c) Find the turning point of the curve and determine if it is a max or a min point.</p> <p>d) Given that the point D (4 , k) lies on the curve, find the value of k.</p> 
4.	<p>Jimmy started cycling from his house at 08 00. He cycled at a constant speed of x km/h. After an hour, he realised that he was running late for his Math tuition and he increased his speed by 5 km/h. He reached his destination at 12 00. Given that his average speed for the entire journey was 19 km/h, find the value of x.</p>

<p>5. The diagram shows the graph of $y = x^2 + ax + b$. Find</p> <p>a) The equation of the line of symmetry of the curve.</p> <p>b) The values of a and b.</p> <p>c) The coordinates of the min point of the curve.</p> <p>d) The range of values of x for which the gradient of the curve is positive.</p>	
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Answer Key:

1. a) $(5x - 1)(3x + 1) = 0$
 $x = \frac{1}{5}$ or $x = -\frac{1}{3}$

b) $x = 3\frac{2}{3}$ or $x = 2\frac{1}{3}$

c) $(4x - 13)(x + 1) = 0$
 $x = 3\frac{1}{4}$ or $x = -1$

2. $(2x + y)(x - 3y) = 0$

$2x = -y$ or $x = 3y$

$\frac{x}{y} = -\frac{1}{2}$ or $\frac{x}{y} = 3$

3. a) A (-1, 0)
 B (2, 0)
 C (0, 6)

b) $x = \frac{1}{2}$

c) Max Point = $(\frac{1}{2}, 6\frac{3}{4})$

d) $k = -30$

4. $\frac{x+3x+15}{1+3} = 19$

$4x = 61$

$x = 15.25$ km/h

5. a) $x = 5$

b) Sub (3, 0) and (7, 0)

$3a + b = 9$ --- 1

$7a + b = -49$ --- 2

$a = -10, b = 21$

c) Min point: (5, -4)

d) At $x = 5$, gradient of curve = 0.

Gradient of curve is positive when $x > 5$.