

Answers

Question	Roots	Turning point	Nature of turning point	Intersection with y-axis
1 (a)	$x = 1, x = 5$	$(3, -4)$	minimum	$(0, 5)$
1 (b)	$x = 2, x = 8$	$(5, -9)$	minimum	$(0, 16)$
1 (c)	$x = 3, x = 7$	$(5, -4)$	minimum	$(0, 21)$
2 (a)	$x = -1, x = 3$	$(1, -4)$	minimum	$(0, -3)$
2 (b)	$x = -5, x = -3$	$(-4, -1)$	minimum	$(0, 15)$
2 (c)	$x = -4, x = 2$	$(-1, -9)$	minimum	$(0, -8)$
3 (a)	$x = 1, x = 4$	$(\frac{5}{2}, -\frac{9}{4})$	minimum	$(0, 4)$
3 (b)	$x = -2, x = 3$	$(\frac{1}{2}, -\frac{25}{4})$	minimum	$(0, -6)$
3 (c)	$x = -7, x = -4$	$(-\frac{11}{2}, -\frac{9}{4})$	minimum	$(0, 28)$
4 (a)	$x = \frac{1}{2}, x = \frac{3}{2}$	$(1, -1)$	minimum	$(0, 3)$
4 (b)	$x = -\frac{1}{2}, x = 3$	$(\frac{5}{4}, -\frac{49}{8})$	minimum	$(0, -3)$
4 (c)	$x = -\frac{3}{4}, x = \frac{5}{2}$	$(\frac{7}{8}, -\frac{169}{8})$	minimum	$(0, -15)$
5 (a)	$x = 2, x = 4$	$(3, 1)$	maximum	$(0, -8)$
5 (b)	$x = -\frac{1}{2}, x = 5$	$(\frac{9}{4}, \frac{121}{8})$	maximum	$(0, 5)$
5 (c)	$x = \frac{2}{3}, x = \frac{3}{2}$	$(\frac{13}{12}, \frac{25}{24})$	maximum	$(0, -6)$
6 (a)	$x = 3, x = 9$	$(6, -9)$	minimum	$(0, 27)$
6 (b)	$x = 2, x = 4$	$(3, -1)$	minimum	$(0, 8)$
6 (c)	$x = -5, x = -3$	$(-4, -1)$	minimum	$(0, 15)$
7 (a)	$x = \frac{1}{2}, x = \frac{7}{2}$	$(2, -9)$	minimum	$(0, 7)$
7 (b)	$x = 1, x = 5$	$(3, 4)$	maximum	$(0, -5)$
7 (c)	$x = -\frac{7}{2}, x = \frac{3}{2}$	$(-1, 25)$	maximum	$(0, 21)$
8 (a)	$x = -3, x = 7$	$(2, -25)$	minimum	$(0, -21)$
8 (b)	$x = -\frac{1}{2}, x = \frac{1}{3}$	$(-\frac{1}{12}, -\frac{25}{24})$	minimum	$(0, -1)$
8 (c)	$x = -1, x = 3$	$(1, 4)$	maximum	$(0, 3)$
8 (d)	$x = -2, x = 0$	$(-1, -1)$	minimum	$(0, 0)$
8 (e)	$x = 1, x = 5$	$(3, 8)$	maximum	$(0, -10)$
8 (f)	$x = \frac{1}{2}, x = \frac{3}{4}$	$(\frac{5}{8}, -\frac{1}{8})$	minimum	$(0, 3)$