

R15 DERIVATIVES

ANSWER KEY

1	Turning Point: $\left(\frac{27}{8}, \frac{889}{16}\right)$	Nature: Maximum
2	Turning Point: $\left(-\frac{3}{2}, \frac{3}{4}\right)$	Nature: Minimum
3	Turning Point: $\left(-1, -\frac{7}{12}\right)$	Nature: Minimum
4	$p = 15, q = 1$	Stationary Point: $(5, -24)$
5	Turning Points: $(2, -15)$ And $(-1, 12)$	Nature: $(2, -15)$ is Minimum $(-1, 12)$ is Maximum
6	Turning Points: $\left(-\frac{3}{8}, \frac{55}{16}\right)$ and $\left(-\frac{1}{2}, \frac{3}{4}\right)$	$\left(-\frac{3}{8}, \frac{55}{16}\right)$ is Minimum $\left(-\frac{1}{2}, \frac{3}{4}\right)$ is Minimum
7	Turning Points: $\left(\frac{\sqrt{3}}{3}, 1.62\right)$ and $\left(-\frac{\sqrt{3}}{3}, 2.38\right)$	$\left(\frac{\sqrt{3}}{3}, 1.62\right)$ is Minimum $\left(-\frac{\sqrt{3}}{3}, 2.38\right)$ is Maximum
8a	$x < 2$	
8b	$(2, 5)$ is minimum	
9	$r = 10$ cm, $h = 20$ cm	
10	$p = 3, q = -36, r = 10$	
11	$x = \frac{100}{\pi+4}$	
12	Turning Point: $\left(-\frac{27}{8}, -\frac{697}{16}\right)$	Nature: Minimum
13	Max Area = 30 cm^2	
14	$k = -12,$	Max point is $(-2, 16)$.

