

Prelim Revision 2016 Answers

Question	Answer
1	$3y = 5x - 7$
2	a) $\frac{1}{2}$ b) 1
3	a) $y' = 6x^2 + 2x - 4$ b) $y' = \frac{1}{x^2} - \frac{1}{2x^{\frac{3}{2}}}$
4	$3\frac{2}{3}$
5	
6	
5	$(x+3)^2+2$; min(-3,2) ; max = $\frac{1}{2}$
6	$y = 2.5x + 14.5$
7	$y = -x - 7$; $\tan \theta = -1$ so $\theta = 135^\circ$
8	Show your teacher your answer.
9	$k = \pm 6$
10	a) (0,00 and (3,0) b) max at (0,0) and min at (2,-16) c) see teacher d) area = 27cm^2
11	a) reflected in x axis b) moved 2 to the left c) moved 3 up d) reflected in x axis then moved up 2
12	$\sqrt{41}\cos(x-39)^\circ$, (i) max $\sqrt{41}$, $x=39^\circ$, min $-\sqrt{41}$ $x=219^\circ$.
13	$y = 12x - 6$
14	$y = x - 2$
15	$u_{n+1} = 0.65u_n + 8$ with $u_0 = 25$; $L = 22.86$ tons
16	$f(g(x))=3-10x$, $g(f(x)) = -4-10x$; $x = 0$
17	See teacher : $17\frac{1}{3}\text{cm}^2$
18	$y = x - 2x^2$
19	See teacher
20	Ans. included in the question
21	$\frac{29}{8}$
22	Increasing for $x > 5$ and $x < -1$
23	a) $\frac{240}{289}$; b) $\frac{161}{289}$
24	$2y + x = 1$

26. (a) 30 (b) 15540 (c) 5.9 hours

27. (a) 6 (b) 3 (c) 2 (d) 3

28. (a) (16, 0) (b) (6, 0)

29. (a) (0, 3) (b) (0, 8)

30. (a) 0.505 (b) 1.37 years

31. (a) $f^{-1}(x) = 2(x - 8)$ 34. $f^{-1}(x) = \sqrt[3]{(x + 6)}$

32. $x \in \mathbb{R}, x \geq 0$ $f^{-1}(x) = (y - 5 / 2)^2$