



Intermediate Pure Mathematics – Answers

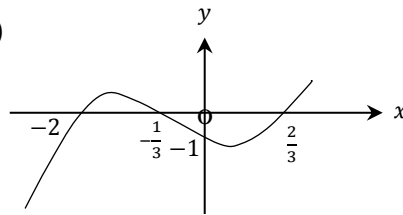
1. (a) 81 (b) $\frac{13}{36}$

2. (a) $1 - 5x + \frac{39}{4}x^2 - 10x^3 + \dots$ (b) 4 (c) 0.17

3. (a) $8x^2 + 4x + 5 = 0$ (b) (i) 10 (iii) (3, 1)

4. (b) $(x + 2)(3x + 1)(3x - 2)$ (c)

(d) $-2 < x - \frac{1}{3}; x > \frac{2}{3}$



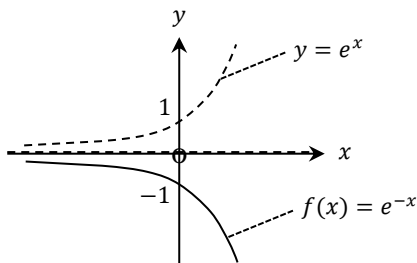
5. (a) $\frac{2}{x-1} - \frac{3}{x+2} + \frac{4}{(x+2)^2}$

(b) $-15 < x < -4$

6. (a) $(-3, -2)$ (b) $\frac{1}{5}; y = -5x - 13$ (d) $(-2, -3)$ (e) $2\sqrt{13}$

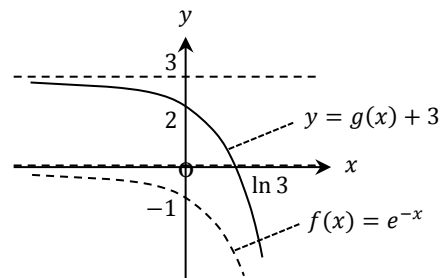
7. (a) $\frac{\pi}{6}, \frac{5\pi}{6}$ (b) (i) $4\sqrt{3}$ cm

8. (i)



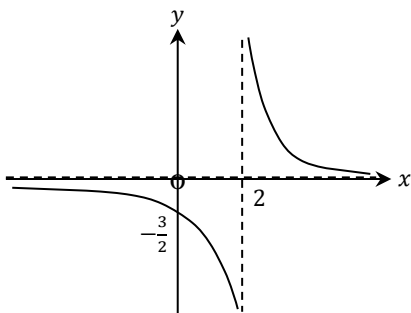
Range f : $f(x) \in \mathbb{R}, f(x) < 0$

(ii)



(iii) Range g : $g(x) \in \mathbb{R}, g(x) < 3$

(b)



Domain h : $x \in \mathbb{R}, x \neq 2$

Range h : $h(x) \in \mathbb{R}, h(x) \neq 0$