



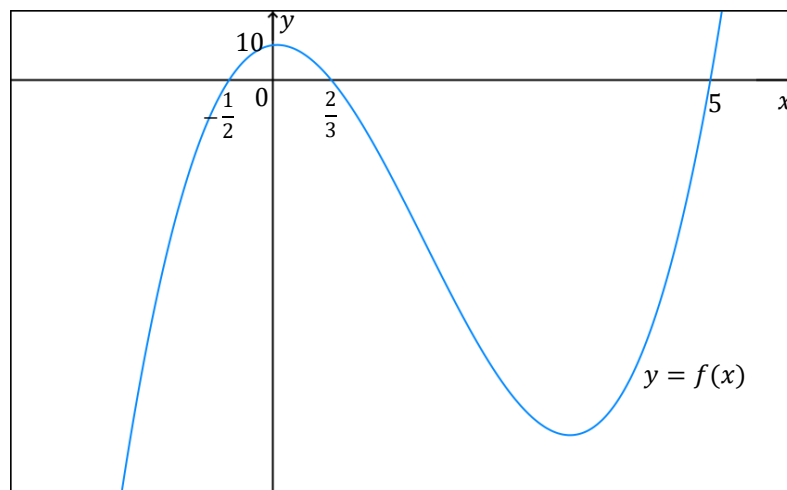
Pure Mathematics Intermediate Level June 2019 Examination – Answers

1. (a) $x = \frac{6}{5}$.

1. (b) $(1 - 4x)^7 \approx 1 - 28x + 336x^2$, $(0.96)^7 \approx 0.754$.

2. (b) $f(x) = (x - 5)(3x - 2)(2x + 1)$.

2. (c)



2. (d) $-\frac{1}{2} \leq x \leq \frac{2}{3}$ or $x \geq 5$.

3. (a) $\log\left(\frac{y}{x^2}\right)$.

3. (b) $x = 0.737$.

3. (c) $x = 5$ or $x = 6$.

4. (a) (ii) $8x^2 + 12x + 1 = 0$.

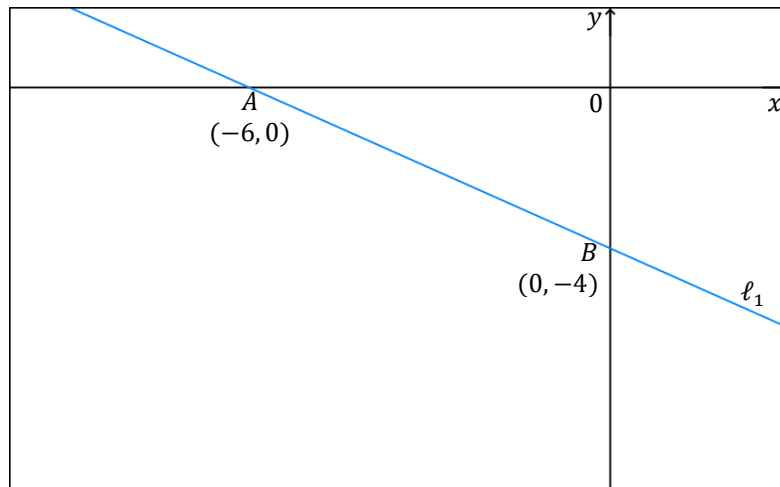
4. (b) $-2 < k < 3$.

5. (a) $\frac{7}{x-2} + \frac{5-6x}{x^2+1}$.

5. (b) $3 < x \leq 11$.



6. (a) $A(-6, 0), B(0, -4)$.



6. (b) $k = -4$.

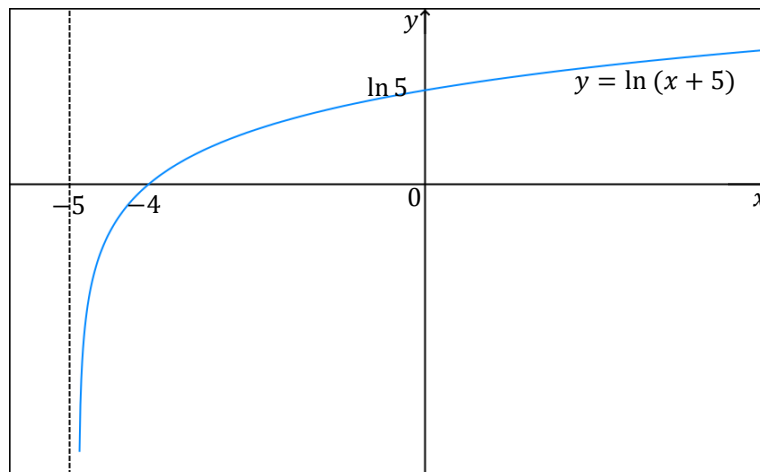
6. (d) $E(-3, -2)$.

6. (e) $\frac{39}{4}$ square units.

7. (a) $x = 63.4^\circ, 161.6^\circ, 243.4^\circ, 341.6^\circ$.

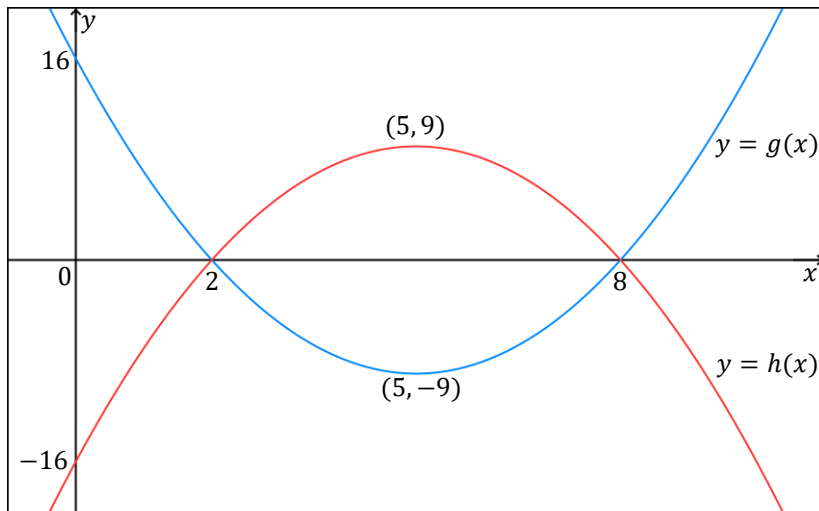
7. (b) (i) $\cos \theta = -\frac{2\sqrt{2}}{3}, \tan \theta = -\frac{\sqrt{2}}{4}$.

8. (a) (i)





8. (a) (ii) Domain: $x \in (-5, \infty)$. Range: $x \in \mathbb{R}$.
8. (b) (i) Minimum value of $g(x)$ is -9 . It occurs at $x = 5$.
8. (b) (ii) $x = 2$ or $x = 8$.
8. (b) (iii)



8. (b) (iv) Range: $h(x) \in (-\infty, 9]$.
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