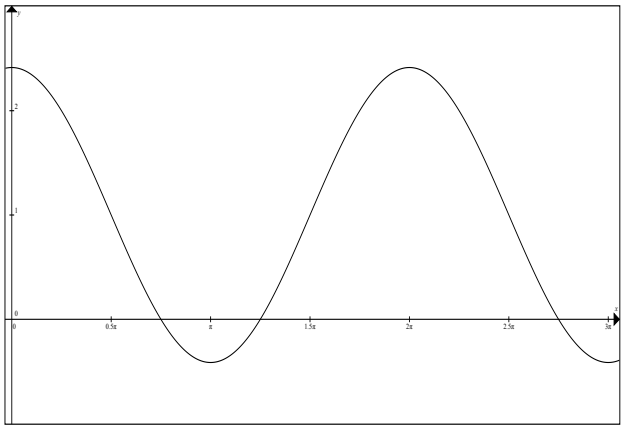
# IM2 SECONDARY 3 EOY 2018 ANSWERS

| Number | Answers |
|---|---|
| 1(i) | $A = 875$ |
| 1(ii) | The disease has not infected 95 people at the end of Day 7. |
| 2(i) | $\sin\theta = \frac{1}{k}$ |
| 2(ii) | $\sec^2\theta = \frac{k^2}{k^2-1}$ |
| 2(iii) | $\tan\theta = -\frac{1}{\sqrt{k^2-1}}$ |
| 3(b) | $\theta = 10.3°, 119.7°, 190.3°, 299.7°$ |
| 4 | $p = 1,\ q = \frac{1}{3}$ |
| 5(i) | Amplitude $= \sqrt{2}$<br>Period $= 2\pi$. |
| 5(ii) |  |
| 6(i) | 7 |
| 6(ii) | (1, 0) |
| 6(iii) | $x = 1$ |
| 6(iv) | $\left(-5, 10\frac{1}{2}\right)$ |
| 7(a) | $x = -\frac{4}{3}$ or $x = -1$ |
| 7(b) | $y = 4.74$ |
| 7(c) | $w = \frac{1}{3}$ . |
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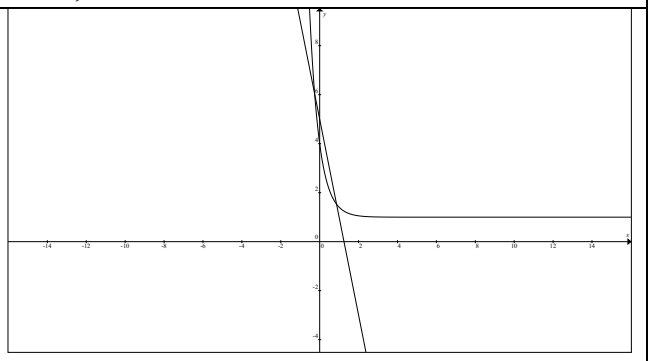
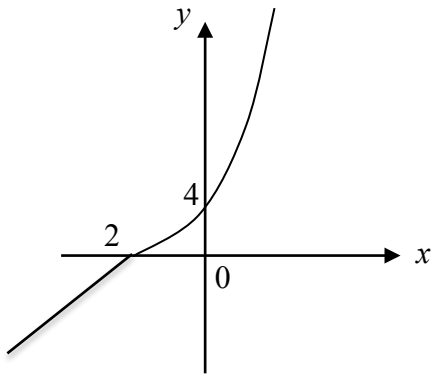
|---|---|
| 8(a) | $y = 2\left(x - 1\frac{1}{2}\right)^2 - 7\frac{1}{2}$<br>Minimum value of h is $-7\frac{1}{2}$. |
| 8(b) | $b < -4$ or $b > 4$ |
| 8(c) | $8x^2 - 232x - 343 = 0.$ |
| 9(a) | $x > 0,\ x \neq 1$ |
| 9(b) |  <br>Add the line $y = 5 - 4x$<br>Number of solution = 2 |
| 10(i) | The other linear factor is $2x - 3$. |
| 10(ii) | $\frac{f(x)+8}{f(x)} = 1 + \frac{1}{2(2x-3)} - \frac{1}{2(2x+1)} - \frac{2}{(2x+1)^2}$ |
| 11(i) | $h^2\left(-2\frac{1}{2}\right) = 1$ |
| 11(ii) |  |
| 11(iii) | $h^{-1}: x \mapsto \begin{cases} \frac{x-4}{2}, & x < 0, \\ \sqrt{x} - 2, & x \geq 0. \end{cases}$ |
| 12 Bonus | $\alpha - \beta = 3\sqrt{3} - 6$. |