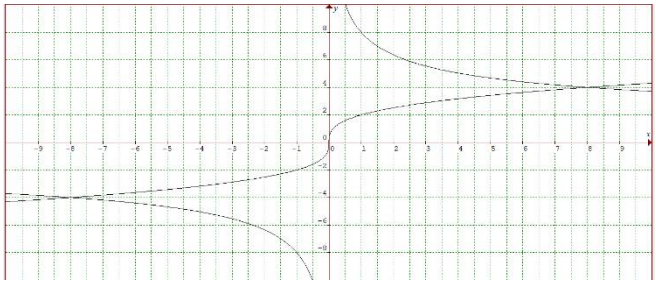
2017 CHIJ SNGS
Sec 4 AM Prelim Paper 1 Answers

1) 0.173

2) $x = 1$

3) $-2 < x < 0$

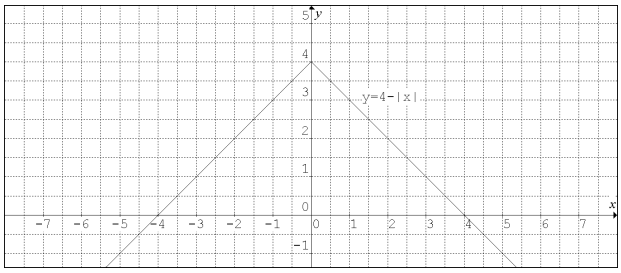
4i) 

4i) (8, 4) and (–8, –4)

5) $y = -2\frac{1}{3}$ or $y = 1\frac{1}{3}$

6) $-1 < m < 1$

7i) amplitude = 3, period = $8\pi$
7ii) $a = -3$, $b = 4$, $c = 1$

8i) 


8ii) (–1, 3)
8iii) $m \le -1$ or $m \ge 1$

9ii) $x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}$

10i) $t = 3.47$
10ii) 7.36 m

11ii) max area when $\theta = \frac{\pi}{3}$

13i) $A$ is (1, 0.5)
13ii) 3.04 sq. units

2017 CHIJ SNGS
Sec 4 AM Prelim Paper 2 Answers

1ii) $f(x) = \frac{2}{3}x^3 - 2x^2 + 5x + \frac{5}{3}$

2i) $k = -2$
2ii) 1 real solution or 2 real and repeated solutions

3) $p = 3,\ q = 4$

4) 4.45 sq. units

5i) ${}^{18}C_r\left(\frac{x^2}{4}\right)^{18-r}\left(\frac{2}{x}\right)^r$ or ${}^{18}C_r\left(\frac{x^2}{4}\right)^{r}\left(\frac{2}{x}\right)^{18-r}$

5ii) $36 - 3r$
5iii) 18564

5b) $k = \frac{4}{1-n}$

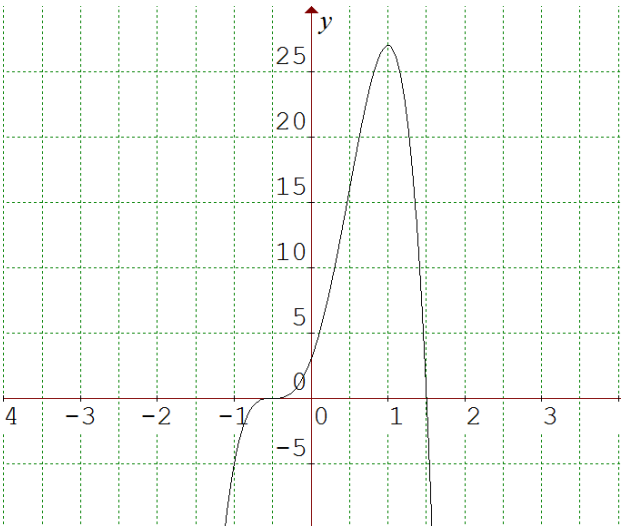
6i) $9 - \sqrt{3}$
6ii) $BC^2 = 65 - 26\sqrt{3}$
6iii) $\frac{2}{3}\left(182 - 39\sqrt{3}\right)$

7i) $\frac{4x}{2x^2+1}$
7ii) $\frac{1}{x+1} + \frac{2x}{2x^2+1}$
7iii) 0.608

8i) $9\sin\theta + 5\cos\theta + 9$
8ii) $\sqrt{106}\cos(\theta - 60.9°) + 9$
8iii) $\theta = 74.7°, 47.2°$
8iv) 19.3 km

9i) (–0.5, 0) and (1, 27)
9ii) (–0.5, 0) is a point of inflexion.
(1, 27) is a maximum point.

9iii)




10i) $a = 2$

10ii) $(x-2)^2 + (y+13)^2 = 169$

10iii) $y = -\frac{5}{12}x + \frac{23}{12}$

10iv) $(x+2)^2 + (y+13)^2 = 13^2$

11i) incorrect $y = 47.5$
Correct $y = 37.2$

11ii) $a = 5.01$, $b = 1.40$

11iii) $x = 4.48$

11iv) Draw $\lg y = x \lg 2$ [Y=(lg2)X]
$x = 4.55$