

2017 OP Prelim Exam P2 – Answer Key

1. (a) $y = -2.5$
 $x = 3$
 (b) $\frac{(x+2y)}{(x-3y)}$
 (c) (i) $\left(x - \frac{7}{2}\right)^2 - 15\frac{1}{4}$
 (ii) $x = 7.41 \quad x = -0.41$
2. (a)(i) $60 - 10t$ cm
 (a)(ii) $15t$ cm
 (c) $t = 5.31 \quad t = -1.62$
 (d) $60 - 10(5.313) = 6.87$ km
3. (b)(i) $\angle ACE = 30^\circ$
 (b)(ii) $\angle ABD = 60^\circ$
 (b)(iii) $\angle ECB = 80^\circ$
 (c) $AC = 9.24$ cm
4. (a) $u_5 = 89$
 (b) $u_8 = 2201$
 (c) $u_n = 3^{n-1} + 2(n-1)$
 (e)(iii) $2(3^{n-2}) + 2$
5. (a) 4020 cm^3
 (b) (ii) $r = 5.6$
 (iii) 14.5%
6. (a)(i) $-2\mathbf{a} + \mathbf{b}$
 (ii) $\frac{1}{2}\mathbf{a} + \frac{3}{4}\mathbf{b}$
 (iii) $= \mathbf{a} + \frac{3}{2}\mathbf{b}$
 (c) $1 : 5$
7. (a) 22
 (c) (i) 5.8s
 (ii) 2.45s
 (iii) 43 m/s, 0 m/s
 (d)(iii) $v = -7t + 58$
8. (a)(i) 53 or 54
 (ii) 25
 (iii) 325
 (iv) 70
 (v) P1
 (b) (i) $\frac{3}{5}$ (ii) $\frac{77}{145}$

- 9(a)(i) 163.9°
 (ii) 2.14 cm^2
 (iii) $85\,400 \text{ m}^2$

9(b)(i) 6.32 km

- (ii) 207.0°
 (iii) 20.1°

10 (a) \$54

(c) Plan C ,Option 1