

1) a) $(-5, -5\sqrt{3})$ b) $(4\sqrt{3}, -4)$ 2) a) $(6\sqrt{2}, 135^\circ)$ b) $(5, 293^\circ)$

3) a) second b) fourth c) first d) first 4) a) $x^2 + y^2 = 5y$ b) $x = 10$

5) a) $r = \frac{11}{4 \sin \theta - 3 \cos \theta}$ b) $r = 2 \cos \theta + 4 \sin \theta$ 6) $5 - 5\sqrt{3}i$

7) $20 \left(\cos \frac{7\pi}{4} + i \sin \frac{7\pi}{4} \right)$ 8) a) $57j$ b) $\sqrt{1061}$ c) -60 d) 65°

e) 26.6° f) $\frac{56}{17}i - \frac{105}{17}j$ g) $\frac{28}{5}i - \frac{21}{5}j$ h) $-2i + 4j$

9A) a) $-\frac{24}{7}$ b) $\frac{21}{2}$ 10) a) $V = (\pm 5, 0)$ $F = (\pm 13, 0)$ A: $y = \pm \frac{12}{5}x$

b) $C = (-1, 2)$ $V = (-1, 6)$ and $(-1, -2)$ $F = (-1, 7)$ and $(-1, -3)$

11) a) $C = (0, 0)$ $F = (0, \pm\sqrt{161})$ $MV = (0, \pm 15)$

b) $C = (2, -4)$ $F = (2 \pm \sqrt{119}, -4)$ $MV = (14, -4)$ and $(-10, -4)$

12) a) $V = (0, 0)$ $F = (-6, 0)$ D: $x = 6$ b) $V = (1, -7)$ $F = (1, -4)$ D: $y = -10$

13) $\frac{x^2}{13} + \frac{y^2}{49} = 1$ 14) $(24, 5)$ and $(-24, 5)$ 15) $F = (-6, 4)$ D: $x = 6$

16) $(x-2)^2 = -16(y-7)$ 17) $(y+2)^2 = 16(x-1)$ 18) $(2, -5)$

19) $\frac{x^2}{196} - \frac{y^2}{144} = 1$ 20) a) H b) P c) E 21) $V = (-4, -3)$ $F = (-4, -1)$