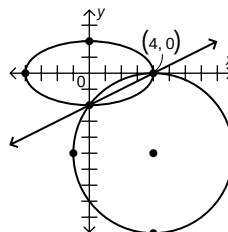


Practise, Apply, Solve 7.11U, page 626

- (a) $(-3, 4)$ $(4, -3)$ (b) $(-2, 1)$ (c) $(-1, -2)$ $(1, -2)$
- hyperbola, vertices $(-2, 0)$, $(2, 0)$; straight line through $(2, 0)$ and $(0, 4)$; intersect at $(2, 0)$
- parabola, opens up, vertex $(0, 0)$; straight line through $(0, 5)$ and $(\frac{5}{3}, 0)$; intersect at $(1, 2)$ and $(-2.5, 12.5)$
- circle centred on $(7, -4)$, radius $(7, 4)$; straight line through $(0, 5)$ and $(2.5, 0)$; intersect at $(5, -5)$
- straight line through $(0, 0)$ and $(1, 1)$; ellipse, with centre $(1, 1)$, major axis (horizontal) $4\sqrt{5}$; minor axis $2\sqrt{5}$; intersect at $(-1, -1)$ and $(3, 3)$
- (a) ellipse, vertices $(0, 2\sqrt{5})$ and $(0, -2\sqrt{5})$; straight line through $(0, 2)$ and $(1, 0)$
(b) $(-\frac{2}{3}, \frac{10}{3})$, $(2, -2)$
- (a) $(-8, -6)$, $(6, 8)$ (b) $(\sqrt{21}, 5)$, $(-\sqrt{21}, 5)$
(c) $(1, -1)$, $(-4, 14)$ (d) $(\frac{3}{2}, 2)$, $(-1, -3)$
(e) $(-2.4, 4.4)$, $(4.4, -2.4)$
- $(1.08, -6.8)$, $(-6.8, 10.43)$
- Examples:
(a) $y = -\frac{2}{3}x + 2$, intersect at $(3, 0)$ and $(0, 2)$
(b) $y = -2$, intersect at $(0, -2)$
(c) $y = -\frac{2}{3}x + 4$, no intersection
- Examples:
(a) $x = 1$, intersect at $(0, 2\sqrt{\frac{5}{3}})$ and $(0, -2\sqrt{\frac{5}{3}})$
(b) $y = \sqrt{6}$, intersect at $(0, \sqrt{6})$
(c) $y = 1$; no intersection
- $(-0.29, 0.71)$ and $(-1.71, -0.71)$

- (a) parabola, opens right, vertex $(1, 0)$; straight line through $(0, -10)$ and $(5, 0)$; solution: $(9, 8)$ and $(3, -4)$
(b) hyperbola, centre $(2, -2)$; straight line through $(0, -0.5)$ and $(1, 0)$; solution: $(7.88, 3.44)$ and $(-0.54, -0.77)$
- intersection points: $(5, -7)$ and $(-1, 1)$
- Answers can vary. The lines $y = -2$ and $y = 2$ are possible solutions.
- yes
- Answers will vary. In each case, the algebraic solution for (i) one solution would have 1 real root; (ii) two solutions would have 2 real roots; and (iii) no solution would have no real roots; not factorable; negative under the root sign.

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intersection points: $(4, 0)$ and $(0, -2)$

- equation of perpendicular bisector: $y = \frac{1}{3}x + \frac{10}{3}$
- (a) ellipse, vertices $(-7, 0)$ and $(7, 0)$; hyperbola, vertices $(0, 2)$ and $(0, -2)$
(b) solutions: $(3, \sqrt{10})$, $(-3, \sqrt{10})$, $(3, -\sqrt{10})$, $(-3, -\sqrt{10})$
- circle centred on origin, radius 5, parabola, opens down, vertex $(0, -2)$: $(2.51, -4.32)$, $(-2.51, -4.32)$