

8.2

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P. 452 # 5, 8  
 5 a)  $y - 1 = -\frac{7}{8}x$

Use  
Substitution

$$8y - 8 = -7x$$

$$3x^2 + y = 8x - 1$$

$$y = -3x^2 + 8x - 1$$

$$8(-3x^2 + 8x - 1) - 8 = -7x$$

$$-24x^2 + 64x - 8 - 8 = -7x$$

$$-24x^2 + 71x - 16 = 0$$

$$x = \frac{-71 \pm \sqrt{71^2 - 4(-24)(-16)}}{2(-24)}$$

$$x = \frac{-71 \pm \sqrt{5041 - 1536}}{-48}$$

$$x = \frac{-71 \pm \sqrt{3505}}{-48}$$

$$x = 0.2458 \text{ or } 2.7126$$

$$8y - 8 = -7(0.2458)$$

$$8y - 8 = -1.7206$$

$$8y = 6.2794$$

$$y = 0.7849$$

$$(0.25, 0.78)$$

$$8y - 8 = -7(2.7126)$$

$$8y - 8 = -18.9882$$

$$8y = -10.9882$$

$$y = -1.3735$$

$$(2.71, -1.37)$$

equation 1 - eliminate the fraction by multiplying by the denominator

equation 2 - solve for y and substitute into equation 1

use quadratic formula!

substitute into an equation to find the y-values



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$$5. c) x^2 - \frac{48}{9}x + \frac{1}{3}y + \frac{1}{3} = 0$$

$$9x^2 - 9 \cdot \frac{48}{9}x + 9 \cdot \frac{1}{3}y + 9 \cdot \frac{1}{3} = 9 \cdot 0$$

$$9x^2 - 48x + 3y + 3 = 0$$

$$9x^2 - 48x + 3y + 3 = 0$$

$$\frac{-15x^2 - 18x + 3y - 6 = 0}{\phantom{-15x^2 - 18x + 3y - 6 = 0}}$$

$$\frac{24x^2 - 30x + 9 = 0}{\phantom{24x^2 - 30x + 9 = 0}}$$

$$8x^2 - 10x + 3 = 0$$

$$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(8)(3)}}{2(8)}$$

$$x = \frac{10 \pm \sqrt{100 - 96}}{16}$$

$$x = \frac{10 \pm \sqrt{4}}{16}$$

$$x = \frac{10 \pm 2}{16}$$

$$x = \frac{12}{16} = 0.75 \quad \text{or} \quad \frac{8}{16} = 0.5$$

$$9(0.75)^2 - 48(0.75) + 3y + 3 = 0$$

$$5.0625 - 36 + 3y + 3 = 0$$

$$-27.9375 + 3y = 0$$

$$3y = 27.9375$$

$$y = -9.3125$$

$$(0.75, -9.31)$$

$$9(0.5)^2 - 48(0.5) + 3y + 3 = 0$$

$$2.25 - 24 + 3y + 3 = 0$$

$$-18.75 + 3y = 0$$

$$3y = 18.75$$

$$y = -6.25$$

$$(0.5, -6.25)$$

$$-\frac{5}{4}x^2 - \frac{3}{2}x + \frac{1}{4}y - \frac{1}{2} = 0$$

$$\cancel{4} \left( -\frac{5}{\cancel{4}} \right) x^2 - \cancel{4} \cdot \frac{3}{2}x + \cancel{4} \cdot \frac{1}{4}y - \cancel{4} \cdot \frac{1}{2} = 4 \cdot 0$$

$$-5x^2 - 6x + y - 2 = 0$$

$$-15x^2 - 18x + 3y - 6 = 0 \quad \text{multiply by 3}$$

divide by 3 to reduce

p. 452 cont.

8. ①  $mx^2 - y = 16$   
②  $mx^2 + 2y = n$

①  $m(2)^2 - 8 = 16$   
 $4m - 8 = 16$   
 $4m = 24$   
 $m = 6$

$m = 6$   
 $n = 40$

$(\underset{x}{2}, \underset{y}{8})$  is a solution  
find  $m$  and  $n$

②  $m(2)^2 + 2(8) = n$   
 $4m + 16 = n$

$4 \cdot 6 + 16 = n$   
 $24 + 16 = n$   
 $40 = n$

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