

10

$(-2, 6)$

$(-12, 1)$

$$xy = -12$$

$$x - 2y + 14 = 0$$

$$x = 2y - 14$$

$$(2y - 14)y = -12$$

$$2y^2 - 14y + 12 = 0$$

$$y^2 - 7y + 6 = 0$$

$$(y - 6)(y - 1) = 0$$

$$y = 6 \quad y = 1$$

(18)

$$y = -2x + 4$$

$$(x+1)^2 + (y-2)^2$$

$$\left(\frac{1}{5}+1\right)^2 + \left(\frac{18}{5}-2\right)^2$$

$$\left(\frac{6}{5}\right)^2 + \left(\frac{8}{5}\right)^2$$

$$\frac{36}{25} + \frac{64}{25} (x+1)^2 + (-2x+4-2)^2 = 4$$

$$(-2x+2)^2$$

$$x^2 + 2x + 1 + 4x^2 - 8x + 4 = 4$$

$$y = -\frac{2}{5} + 4 \quad 5x^2 - 6x + 1 = 0$$

$$\left(\frac{1}{5}, \frac{18}{5}\right)$$

$$\left(1, 2\right)$$

$$(5x-1)(x-1)$$

$$\frac{1}{5} \quad 1$$

24

$$(\sqrt{5}, \sqrt{2})$$

$$(\sqrt{5}, -\sqrt{2})$$

$$(-\sqrt{5}, \sqrt{2})$$

$$(-\sqrt{5}, -\sqrt{2})$$

$$\sqrt{1 - y^2} = 3$$

$$1 - y^2 = 9$$

$$-\sqrt{2} y^2 = 8$$

$$16x^2 - 4y^2 = 72$$

$$4x^2 - y^2 = 18$$

$$x^2 - \frac{y^2}{4} = \frac{9}{2}$$

$$3x^2 = 15$$

$$x^2 = 5$$

$$x = \pm\sqrt{5}$$

32

$$x^2 + 4y^2 = 20$$

$$xy = 4$$

$$y = \frac{4}{x}$$

$$x^2 + 4\left(\frac{4}{x}\right)^2 = 20$$

$$x^2 + \frac{64}{x^2} = 20$$

(4, 1)

(-4, -1)

(2, 2)

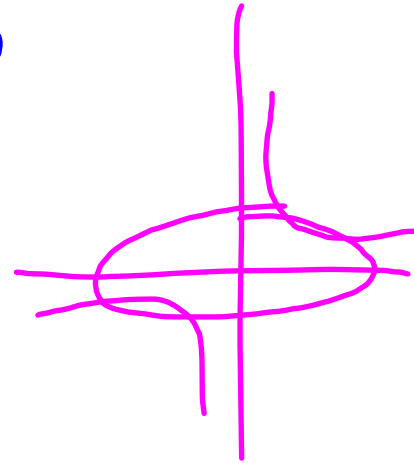
(-2, -2)

$$x^4 + 64 = 20x^2$$

$$x^4 - 20x^2 + 64 = 0$$

$$(x^2 - 16)(x^2 - 4)$$

$$x=4 \quad x=-4 \quad x=2 \quad x=-2$$



34

$$y = 4x - 3$$

$$\left(\frac{19}{29}, \frac{11}{29}\right)$$
$$(1, 1)$$

$$3x^2 - 2(4x - 3)^2 = 1$$

$$3x^2 - 2(16x^2 - 24x + 9) = 1$$

$$\begin{array}{r} 36 \\ -87 \\ \hline \end{array}$$

$$3x^2 - 32x^2 + 48x - 18 = 1$$

$$-29x^2 + 48x - 19 = 0$$

$$29x^2 - 48x + 19 = 0$$

$$(29x - 19)(x - 1)$$

46

$x = 1st \#$	3	-3	3	-3
$y = 2nd \#$	2	2	-2	-2

$$x^2 - y^2 = 5$$

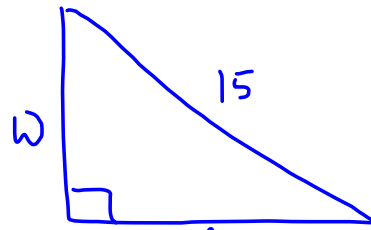
$$3x^2 - 2y^2 = 19$$

$$-2x^2 + 2y^2 = -10$$

$$3x^2 - 2y^2 = 19$$

$$x^2 = 9$$
$$x = \pm 3$$

60



$$l^2 + w^2 = 225$$

$$w = \frac{108}{l} \quad lw = 108$$

$$l^2 + \left(\frac{108}{l}\right)^2 = 225$$

9x12

$$l^2 + \frac{11,664}{l^2} = 225$$

$$l^4 + 11,664 = 225l^2$$

$$l^4 - 225l^2 + 11,664 = 0$$

$$(l^2 - 81)(l^2 - 144)$$

$$l = 9$$

$$l = 12$$

81
144

$$\textcircled{62} \quad lw = 216$$

$$L = \frac{216}{w}$$

$$lw \cdot 2 = 224$$

$$(l-4)(w-4) = 112$$

$$\left(\frac{216}{w} - 4\right)(w-4) = 112$$

$$216 - \frac{864}{w} - 4w + 16 = 112$$

$$-4w - \frac{864}{w} = 120$$

$$-4w^2 - 864 = 120w$$

$$4w^2 - 120w + 864 = 0$$

$$w^2 - 30w + 216 = 0$$

$$(w-18)(w-12) = 0$$

$$w=18$$

$$l=12$$

$$w=12$$

$$l=18$$

72

$$a^2 + b^2 = 10^2$$

$$a^2 + (b+9)^2 = 17^2$$

$$a^2 + b^2 = 100$$

$$a^2 + b^2 + 18b + 81 = 289$$

$$- (18b + 81) = -189$$

$$- 18b - 81 = -189$$

$$- 18b = -108$$

$$b = 6$$

$$a^2 + 36 = 100$$

$$a^2 = 64$$

$$a = 8$$

(74)

$$\log x^2 = y + 3$$

$$\log x = y - 1$$

$$(10,000, 5)$$

$$10^{y+3} = x^2$$

$$10^{y-1} = x$$

$$10^{y+3} = (10^{y-1})^2$$

$$10^{y+3} = 10^{2y-2}$$

$$y + 3 = 2y - 2$$

$$y = 5$$