

MAT 121 § 1.3 #5 23, 36, 56, 68, 70, 79, 80

#5 19-32 Find distance & midpoint for the pairs of points.

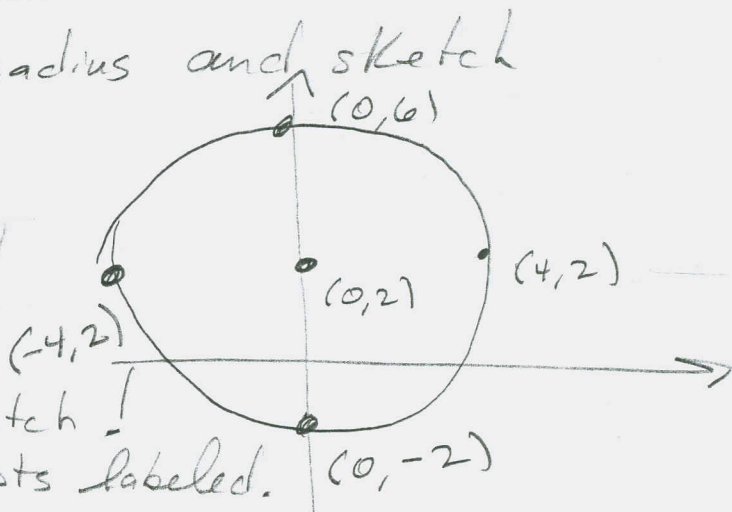
(23) $(12, -11), (5, 13)$
 $(x_1, y_1), (x_2, y_2)$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$
$$= \sqrt{(5 - 12)^2 + (13 - (-11))^2}$$
$$= \sqrt{(-7)^2 + 24^2}$$
$$= \sqrt{625} = \boxed{25 = d}$$

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$= \left(\frac{12 + 5}{2}, \frac{-11 + 13}{2} \right)$$
$$= \left(\frac{17}{2}, \frac{2}{2} \right) = \boxed{\left(\frac{17}{2}, 1 \right) = \text{mpt}}$$

#5 33-40 Find center, radius and sketch

(36) $x^2 + (y - 2)^2 = 16$
 $(h, k) = (0, 2), r = 4$



Awful sketch!
But key pts labeled.

#5 49-62 Same as #5 33-40

(56) $x^2 + 5x + y^2 - y = \frac{5}{2}$

$$x^2 + 5x + \left(\frac{5}{2}\right)^2 + y^2 - y + \left(\frac{1}{2}\right)^2 = \frac{5}{2} + \frac{25}{4} + \frac{1}{4} = \frac{36}{4} = 9$$

$$\left(x + \frac{5}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2 = 9$$

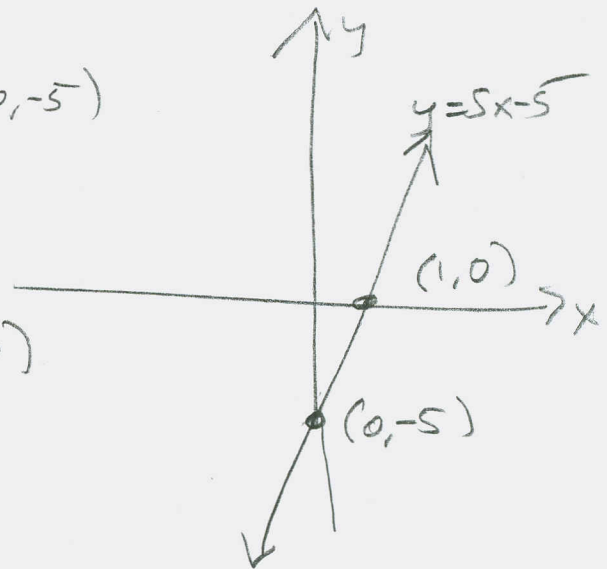
$$(h, k) = \left(-\frac{5}{2}, \frac{1}{2}\right), r = 3$$

MAT 121 § 1.3 #5 68, 70, 79, 80

#5 67-78 Sketch each linear equation

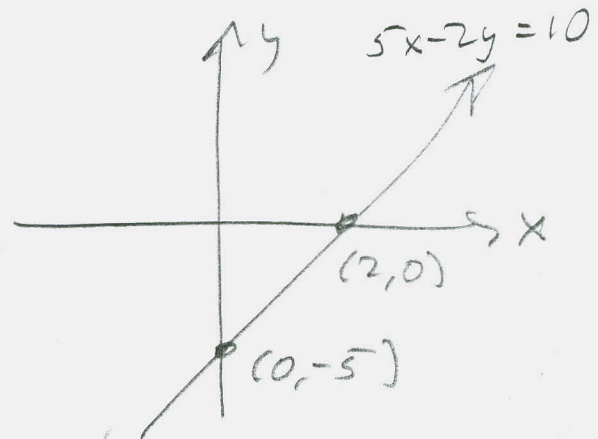
68 $y = 5x - 5$
 $x = 0 \Rightarrow y = -5 \rightsquigarrow (0, -5)$

$y = 0 \Rightarrow 5x - 5 = 0$
 $\Rightarrow 5x = 5$
 $x = 1 \rightsquigarrow (1, 0)$



70 $5x - 2y = 10$

x	y
0	-5 $\rightsquigarrow (0, -5)$
2	0 $\rightsquigarrow (2, 0)$



#5 79-86 Graph.

