Secondary Math 2
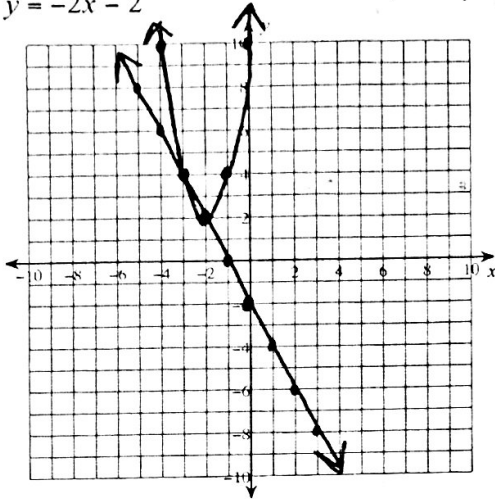
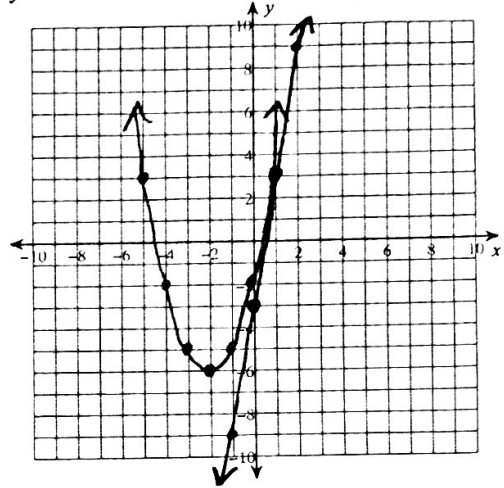Name___**Key**_____

Unit 7 Review

Date_____ Period____

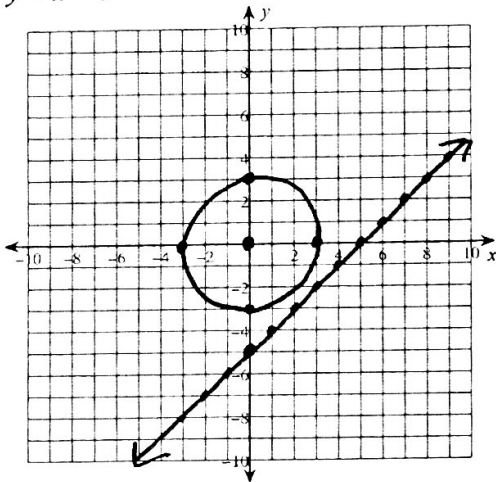**Solve the following systems by graphing.**

1) $y = 2x^2 + 8x + 10$ $(-2,2), (-3,4)$
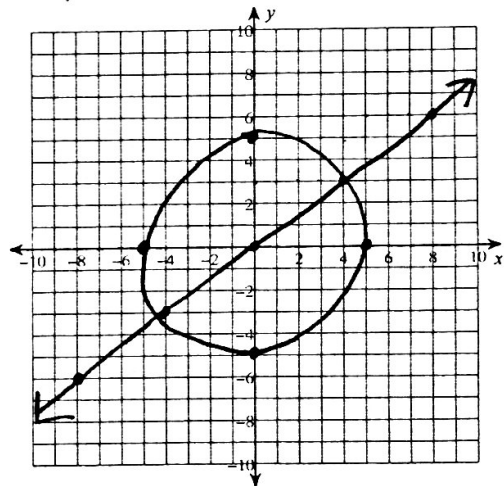 $y = -2x - 2$

2) $y = x^2 + 4x - 2$ $(1,3)$
   $y = 6x - 3$
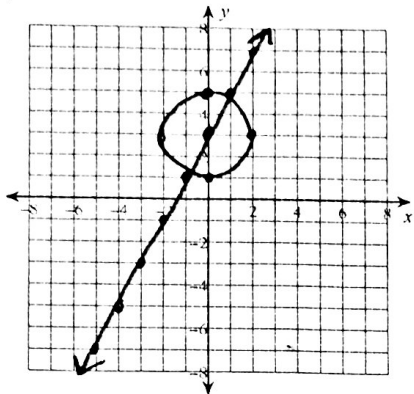

3) $x^2 + y^2 = 9$ No solution
   $y = x - 5$

4) $x^2 + y^2 = 25$ $(4,3), (-4,-3)$
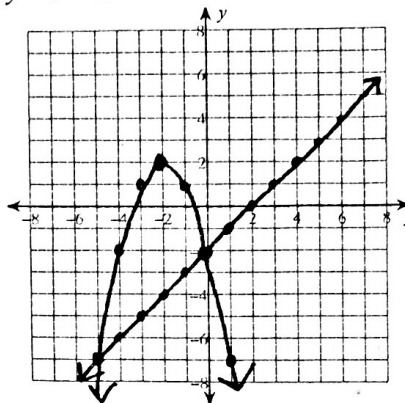 $y = \frac{3}{4}x$

5) $x^2 + (y-3)^2 = 4$
   $y = 2x + 3$

(estimate)
$(-.8, 1.2), (.8, 4.8)$

6) $y = -x^2 - 4x - 2$
   $y = x - 2$

$(-5, -9), (0, -2)$

Solve each system by substitution.

7) $y = -2$
   $-x - 5y = 9$

$(1, -2)$

8) $-8x + 3y = 13$
   $y = 5x + 9$

$(-2, -1)$

9) $y = x^2 - x - 12$
   $y = x + 3$

$(-3, 0), (5, 8)$

10) $y = x^2 + 4x + 3$
    $y = 2x + 6$

$(1, 8), (-3, 0)$

11) $x^2 + y^2 = 3$
   $x - 3y = 3$

   $(-1.07, -1.36)$

   $(1.67, -0.44)$

12) $x^2 + y^2 = 20$
   $y = x - 4$

   $(-0.45, -4.5)$

   $(4.5, 0.45)$

13) $x^2 - 3y = -3$
   $y = x + 1$

   $(0, 1), (-3, -2)$

14) $y = 3x - 2$
   $x^2 - 4y = 8$

   $(0, -2), (12, 34)$

15) A boat traveled 280 miles each way downstream and back. The trip downstream took 14 hours. The trip back took 28 hours. Find the speed of the boat in still water and the speed of the current.

   Boat speed: 15 mph
   Current speed: 5 mph

16) Willie's school is selling tickets to a play. On the first day of ticket sales the school sold 7 adult tickets and 13 child tickets for a total of $186. The school took in $252 on the second day by selling 14 adult tickets and 14 child tickets. Find the price of an adult ticket and the price of a child ticket.

   Adult ticket: $8
   Child ticket: $10

17) Julio and Carlos each improved their yards by planting rose bushes and geraniums. They bought their supplies from the same store. Julio spent $174 on 6 rose bushes and 13 geraniums. Carlos spent $144 on 12 rose bushes and 9 geraniums. What is the cost of one rose bush and the cost of one geranium?

Rose bush: $3
Geranium: $12

18) The admission fee at a small fair is $1.50 for children and $4.00 for adults. On a certain day, 2200 people enter the fair and $5050 is collected. How many children and how many adults attended?

Children: 1500
Adults: 700

Identify the center and radius of each.

19) $(x - 4)^2 + (y - 13)^2 = 9$

C: $(4, 13)$
$r = 9$

20) $(x - 3)^2 + (y - 1)^2 = 64$

C: $(3, 1)$
$r = 8$

21) $(x - 6)^2 + (y - 4)^2 = 16$

C: $(6, 4)$
$r = 4$

22) $(x - 3)^2 + (y + 3)^2 = 12$

C: $(3, -3)$
$r = 2\sqrt{3}$

23) $\left(x - \dfrac{1}{2}\right)^2 + (y - 6)^2 = 81$

C: $(\frac{1}{2}, 6)$
$r = 9$

24) $(x - 10)^2 + (y + 3)^2 = 169$

C: $(10, -3)$
$r = 13$

Use the information provided to write the equation of each circle.

25) Center: $(-6, -10)$
Radius: 5

$(x + 6)^2 + (y + 10)^2 = 25$

26) Center: $(-8, -13)$
Radius: 4

$(x + 8)^2 + (y + 13)^2 = 16$

27) Center: $(16, 13)$
   Point on Circle: $(18, 15)$

$(x-16)^2 + (y-13)^2 = 8$

28) Center: $(1, 13)$
   Point on Circle: $(2, 10)$

$(x-1)^2 + (y-13)^2 =$

29) Center: $(0, 12)$
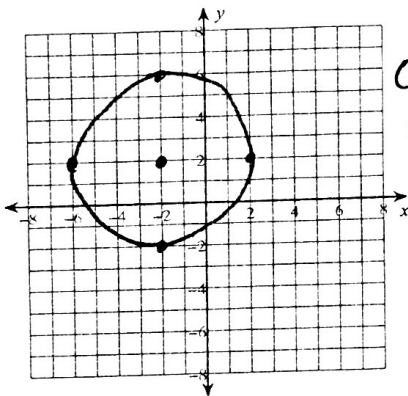   Point on Circle: $(-7, 12)$

$x^2 + (y-12)^2 =$

30) Center: $(-7, -16)$
   Point on Circle: $(-4, -16)$

$(x+7)^2 + (y+16)^2 =$
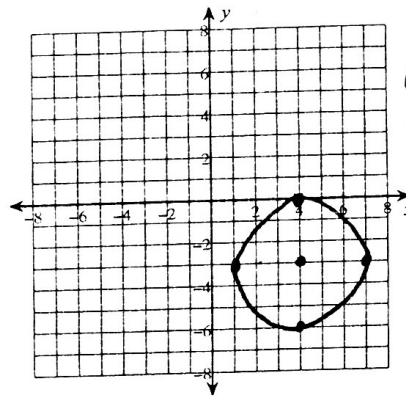
Identify the center and radius of each. Then sketch the graph.
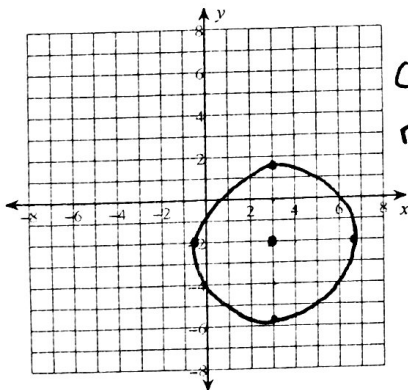
31) $(x + 2)^2 + (y - 2)^2 = 16$
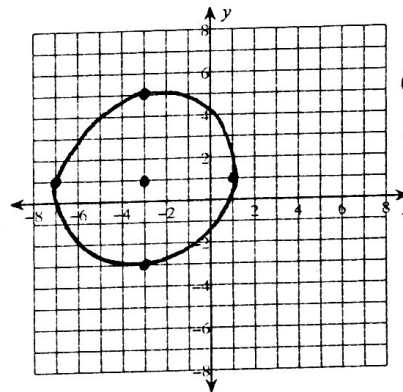

$C: (-2, 2)$
$r = 4$

32) $(x - 4)^2 + (y + 3)^2 = 9$

$C: (4, -3)$
$r = 3$

33) $(x - 3)^2 + (y + 2)^2 = 13$

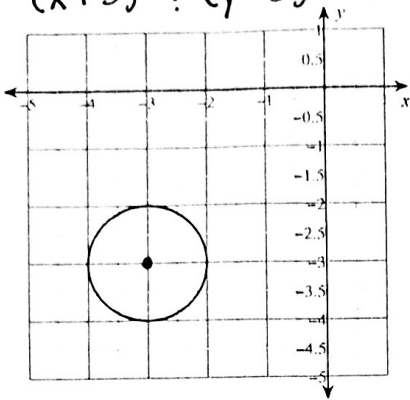

$C: (3, -2)$
$r = \sqrt{13} \approx 3.06$
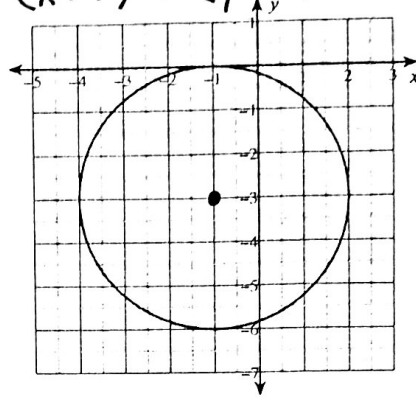
34) $(x + 3)^2 + (y - 1)^2 = 16$

$C: (-3, 1)$
$r = 4$

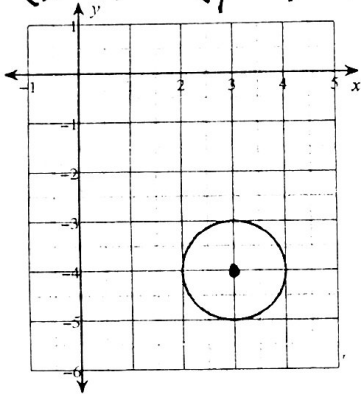Use the information provided to write the equation of each circle.

35) $(x+3)^2 + (y+3)^2 = 1$

36) $(x+1)^2 + (y+3)^2 = 9$

37) $(x-3)^2 + (y+4)^2 = 1$

38) $(x-4)^2 + (y+1)^2 = 4$