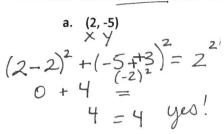
$$(x-h)^2 + (y-K)^2 = r^2$$

Finding the equation of the circle is important!

1. A circle has a radius of 2 and a center of (2, -3). Will the following points lie on the circle?



b. (3,-1)

$$XY$$
 $(3-2)^{2} + (-1+3)^{2} = 2^{2}$
 $(1)^{2} + (2)^{2} = 4$
 $1 + 4 = 4$ Not on the circle
 $5 = 4$ Not ontside 0

- 2. Casey's dartboard is a circle centered at the origin with a radius of 8 inches. He throws 3 darts: (0,0)
 - \bigcirc The first dart hits (-3,5)
 - The second dart hits (4,8)
 - The third dart hits $(2\sqrt{5}, 2\sqrt{11})$

$$(x-h)^{2} + (y-K)^{2} = r^{2}$$

$$(x-0)^{2} + (y-0)^{2} = 64$$

Are his darts inside, outside, or on the board?

Are his darks inside, outside, or on the board?

(a)
$$(-3-0)^2 + (5-0)^2 = 64$$
(b) $(4-0)^2 + (8-0)^2 = (-3)^2$
(c) $(5)^2$
(d) $(4)^2$
(8) $(4)^2$
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b)
$$(4-0)^2 + (8-0)^2 = 64$$

 $(4)^2 (8)^2$
 $16 + 64 = 64$
 $80 = 64$

$$(4)^{2} + (8-0)^{2} = 64 \quad c \quad (2\sqrt{5} - 0)^{2} + (2\sqrt{11} - 0)^{2} = 64$$

$$(4)^{2} \quad (8)^{2} \quad (2\sqrt{5})^{2} + (2\sqrt{11})^{2} = 64$$

$$16 \quad + 64 = 64 \quad 4 \cdot (5) \quad 4(11)$$

$$80 = 64 \quad 20 + 44 = 64$$
region w/ equation:
$$64 = 64$$

$$x^{2} + y^{2} - 6x + 20y - 39,891 = 0 \qquad x = \frac{2}{6}x + \frac{9}{9} + y^{2} + \frac{20}{9} + \frac{100}{9} = 39,891 + \frac{9}{9} + \frac{100}{9}$$

Several churches in the area are protesting that the church might interfere with their building: $(x-3)^2 + (y+10)^2 = 40,000$

Mount Vernon Baptist is located at: (100, 105)

Friendship Baptist Church is located at: (-174, -58)

- (a) If the churches lie within the area of the new stadium, what should the Falcons do?
- (b) How much would be a fair price? (opinion)

MVB:
$$(100-3)^2 + (105+10)^2 = 40,000$$

 $72,634 = 40,000$ They are

Both inside

FBC: $(-174-3)^2 + (-58+10)^2 = 40,000$ The area

 $33,633 = 40,000$

4. The Space Race in the 1960's between The Soviets and The Americans was a race to see who could get a spacecraft to the moon first. The moon has a 2-dimensional region of:

$$x^2 + y^2 + 882x - 166y + 90,345 = 0$$

Russia shoots a rocket that lands at: (-100,80)

USA shoots a rocket that lands at: (-400, -200)

Which country "won" the space race (landed on the moon)?

sional region of:

$$x^2 + 882x + \frac{194,481}{(441)^2} + y^2 - 166y + \frac{6889}{4} = -90,345$$

 $(441)^2$ $(-83)^2$ $+ 194,481$
 $(x + 441)^2 + (y - 83)^2 = 111,025$

Radins

5. A furniture store (at the origin) advertises free delivery within a 50 mile radius from the store. If a customer lives 28 miles east and 41 miles north of the store, does the customer qualify for free delivery? (x-28)2+(y-41)2=502 - (28,41) Center

(a) What if they lived 30 miles west and 41 miles south?

$$(-30-28)^2 + (-41-41)^2 = 2500$$

 $3364 + 6724 = 2500$ ontside the ava!

(b) What about 50 miles west?

$$(-50,0)$$
 $(-50-28)^2 + (0-41)^2 = 2500$
 $6084 + 1681 = 2500$
 $7765 = 2500$
 1000

6. Clowns are roaming around different areas of Acworth. One clown is at $x^2 + 6x + y^2 - 31 = 0$

And the other clown is roaming a center of
$$(-2, -2)$$
 with a radius of 4 miles. $(x-2)^2 + (y-2)^2 = (4)^2 + (y+2)^2 + (y+2)^2 = (6)^2 + (2+3)^2$

Your house is at (6, 0)

$$(6+3)^2 + (0)^2 = 40$$

 $81 = 40$ outside

Your friends house is at (3, -3)

$$C1(3+3)^2+(-3)^2=40$$
 $36+9$
 $45=40$ outside

 $(2(6+2)^2+(0+2)^2=16$ outside

 $C2(3+2)^{2}+(-3+2)^{2}=16$ 25+1=16 25=16 ontside

Coach Harrison's house is at (2.3, 4.1)

$$(2.3+3)^{2}+(4.1)^{2}=40$$

 $(28.09+16.81=40)$
 $(44.9=40)$
outside

C2/2.3+2)2+(4.1+2)=16 18.49 + 37.21 = 16 55.7=16 mtsde