11.2 Ellipses Day 2

Quiz TOMORROW!!!!

Warm-Up Wednesday

Find the eccentricity of the ellipse $e = \frac{c}{a}$

$$\frac{(x-6)^2}{25} + \frac{(y-5)^2}{9} = 1$$

a^2 b^2

$c^2 = a^2 - b^2$

$c^2 = 25 - 9 = 16$

$c = 4$

$e = \frac{4}{5}$

About Me

1. **If you were a fruit, what kind of fruit would you be and why?**
2. **When you play games, do you play to win, or to have fun?**

11.2 Ellipses Day 2

~~Completing the Square~~ → get equation in standard form

① $x^2 + y^2 + 6x + 2y + 6 = 0$

$(x^2 + 6x + 9) + (y^2 + 2y + 1) = -6 + 9 + 1$

$(\frac{6}{2})^2 = (3)^2$ $(\frac{2}{2})^2 = 1^2$

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

center: $(-3, -1)$
radius: 2

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

② $3x^2 - 24x + 4y^2 - 16y + 52 = 0$

$3x^2 - 24x + 4y^2 - 16y = -52$

$3(x^2 - 8x + 16) + 4(y^2 - 4y + 4) = -52 + 3(16) + 4(4)$

$(-\frac{8}{2})^2 = (-4)^2$ $(-\frac{4}{2})^2 = (-2)^2$

$\frac{3(x-4)^2}{12} + \frac{4(y-2)^2}{12} = \frac{12}{12}$

$\boxed{\frac{(x-4)^2}{4} + \frac{(y-2)^2}{3} = 1}$

ELLIPSE = 1

11.2 - Ellipse Center (h, k) Name _____

1. Sketch the graph labeling the center, the foci and the endpoints of the major and minor axes.

$$\frac{(x-6)^2}{25}+\frac{(y-5)^2}{9}=1$$

2. Sketch the graph labeling the center, the foci and the endpoints of the major and minor axes.

$$\frac{(x+2)^2}{9}+\frac{(y+3)^2}{16}=1$$

#3-7 Rewrite each of the following equation in standard form for an ellipse and then find the center, the endpoints of the major and minor axes and the foci.

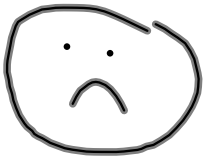
3, $4x^2+9y^2=36$

4. $4x^2-32x+3y^2+12y=-64$

5. $16x^2+25y^2-32x-100y-284=0$

6. $x^2+9y^2+9=6x+18y$

$4x^2 - 4x + 36y^2 + 108y = -73$



NO #7

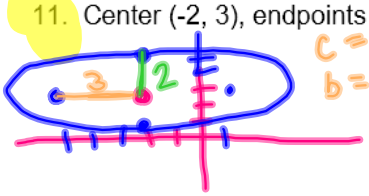
#8-12 Write the equation for each ellipse in standard form.

8. Center (4, 5), endpoints of the major axis (0, 5) and (8, 5) and endpoints of the minor axis (4, 4) and (4, 6).

9. Endpoints of the major axis (1, 1) and (-5, 1) and endpoint of the minor axis (-2, -1).

10. Endpoints of major axis (8, -4) and (-2, -4) and endpoint of the minor axis (3, -1).

11. Center (-2, 3), endpoints of minor axis (-2, 5) and -2, 1) and foci (1, 3) and (-5, 3).



$c = 3$
$b = 2$

$c^2 = a^2 - b^2$
$9 = a^2 - 4$
$13 = a^2$

$$\boxed{\frac{(x+2)^2}{13} + \frac{(y-3)^2}{2^2} = 1}$$

Big #

12. Foci (3, 1) and (3, 3) and endpoint of major axis (3, -2).