

Put in standard form

Adv Alg 2- Sem 2 Week 14 Monday Warm-up

1. $30y - 2x^2 + 43 = 10 - 5y^2 - 4x$

hyperbola

$$5y^2 + 30y - 2x^2 + 4x = -33$$

$$5(y^2 + 6y + \underline{9}) - 2(x^2 - 2x + \underline{1}) = -33 + \underbrace{5 \cdot 9}_{45} + \underbrace{-2 \cdot 1}_{-2}$$

$$5(y+3)^2 - 2(x-1)^2 = 10$$

$$\frac{5(y+3)^2}{10} - \frac{2(x-1)^2}{10} = \frac{10}{10}$$

$$\frac{(y+3)^2}{2} - \frac{(x-1)^2}{5} = 1$$

2. $144x^2 + 72x = 96y - 144y^2 + 695$

circle

$$144x^2 + 72x + 144y^2 - 96y = 695$$

$$144(x^2 + \frac{1}{2}x + \frac{1}{16}) + 144(y^2 - \frac{2}{3}y + \frac{1}{9}) = 695 + \underbrace{144 \cdot \frac{1}{16}}_9 + \underbrace{144 \cdot \frac{1}{9}}_{16}$$

$$144\left(x + \frac{1}{4}\right)^2 + 144\left(y - \frac{1}{3}\right)^2 = 720$$

$$\frac{144\left(x + \frac{1}{4}\right)^2}{144} + \frac{144\left(y - \frac{1}{3}\right)^2}{144} = \frac{720}{144}$$

$$\left(x + \frac{1}{4}\right)^2 + \left(y - \frac{1}{3}\right)^2 = 5$$