

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

**Identify the direction of opening and length of the latus rectum of each.**

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

2)  $4(x - 5) = (y + 10)^2$

3)  $\frac{1}{2}(y + 7) = (x - 8)^2$

4)  $-\frac{1}{2}(y + 10) = (x - 6)^2$

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

6)  $-(x - 4) = (y - 5)^2$

**Identify the length of the latus rectum and eccentricity of each.**

7)  $\frac{(x - 1)^2}{45} + \frac{(y - 3)^2}{40} = 1$

8)  $\frac{(x - 4)^2}{25} + \frac{(y + 9)^2}{64} = 1$

9)  $\frac{(x - 8)^2}{100} + \frac{(y - 6)^2}{49} = 1$

10)  $\frac{(x - 2)^2}{49} + \frac{(y + 4)^2}{100} = 1$

11)  $\frac{(x + 1)^2}{100} + \frac{(y - 9)^2}{169} = 1$

12)  $\frac{(x - 6)^2}{36} + \frac{\left(y - \frac{17}{2}\right)^2}{81} = 1$

Identify the direction of opening, length of the latus rectum, and eccentricity of each.

$$13) \frac{(x-3)^2}{100} - \frac{(y-8)^2}{64} = 1$$

$$14) \frac{(x-3)^2}{144} - \frac{(y-4)^2}{121} = 1$$

$$15) \frac{\left(x + \frac{15}{2}\right)^2}{49} - \frac{\left(y - \frac{3}{2}\right)^2}{64} = 1$$

$$16) \frac{(x+2)^2}{81} - \frac{(y+9)^2}{9} = 1$$

$$17) \frac{(y+7)^2}{225} - \frac{x^2}{196} = 1$$

$$18) \frac{(y-1)^2}{81} - \frac{(x-7)^2}{9} = 1$$

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

**Identify the direction of opening and length of the latus rectum of each.**

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

Opens: Down

Latus rectum: 1 unit

2)  $4(x - 5) = (y + 10)^2$

Opens: Right

Latus rectum: 4 units

3)  $\frac{1}{2}(y + 7) = (x - 8)^2$

Opens: Up

Latus rectum:  $\frac{1}{2}$  units

4)  $-\frac{1}{2}(y + 10) = (x - 6)^2$

Opens: Down

Latus rectum:  $\frac{1}{2}$  units

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

Opens: Left

Latus rectum:  $\frac{1}{2}$  units

6)  $-(x - 4) = (y - 5)^2$

Opens: Left

Latus rectum: 1 unit

**Identify the length of the latus rectum and eccentricity of each.**

7)  $\frac{(x - 1)^2}{45} + \frac{(y - 3)^2}{40} = 1$

Latus Rectum:  $\frac{16\sqrt{5}}{3}$  unitsEccentricity:  $\frac{1}{3} \approx 0.333$ 

8)  $\frac{(x - 4)^2}{25} + \frac{(y + 9)^2}{64} = 1$

Latus Rectum:  $\frac{25}{4}$  unitsEccentricity:  $\frac{\sqrt{39}}{8} \approx 0.781$ 

9)  $\frac{(x - 8)^2}{100} + \frac{(y - 6)^2}{49} = 1$

Latus Rectum:  $\frac{49}{5}$  unitsEccentricity:  $\frac{\sqrt{51}}{10} \approx 0.714$ 

10)  $\frac{(x - 2)^2}{49} + \frac{(y + 4)^2}{100} = 1$

Latus Rectum:  $\frac{49}{5}$  unitsEccentricity:  $\frac{\sqrt{51}}{10} \approx 0.714$ 

11)  $\frac{(x + 1)^2}{100} + \frac{(y - 9)^2}{169} = 1$

Latus Rectum:  $\frac{200}{13}$  unitsEccentricity:  $\frac{\sqrt{69}}{13} \approx 0.639$ 

12)  $\frac{(x - 6)^2}{36} + \frac{\left(y - \frac{17}{2}\right)^2}{81} = 1$

Latus Rectum: 8 units

Eccentricity:  $\frac{\sqrt{5}}{3} \approx 0.745$

Identify the direction of opening, length of the latus rectum, and eccentricity of each.

$$13) \frac{(x-3)^2}{100} - \frac{(y-8)^2}{64} = 1$$

Opens left/right

Latus Rectum:  $\frac{64}{5}$  units

Eccentricity:  $\frac{\sqrt{41}}{5} \approx 1.281$

$$14) \frac{(x-3)^2}{144} - \frac{(y-4)^2}{121} = 1$$

Opens left/right

Latus Rectum:  $\frac{121}{6}$  units

Eccentricity:  $\frac{\sqrt{265}}{12} \approx 1.357$

$$15) \frac{\left(x + \frac{15}{2}\right)^2}{49} - \frac{\left(y - \frac{3}{2}\right)^2}{64} = 1$$

Opens left/right

Latus Rectum:  $\frac{128}{7}$  units

Eccentricity:  $\frac{\sqrt{113}}{7} \approx 1.519$

$$16) \frac{(x+2)^2}{81} - \frac{(y+9)^2}{9} = 1$$

Opens left/right

Latus Rectum: 2 units

Eccentricity:  $\frac{\sqrt{10}}{3} \approx 1.054$

$$17) \frac{(y+7)^2}{225} - \frac{x^2}{196} = 1$$

Opens up/down

Latus Rectum:  $\frac{392}{15}$  units

Eccentricity:  $\frac{\sqrt{421}}{15} \approx 1.368$

$$18) \frac{(y-1)^2}{81} - \frac{(x-7)^2}{9} = 1$$

Opens up/down

Latus Rectum: 2 units

Eccentricity:  $\frac{\sqrt{10}}{3} \approx 1.054$