

Review Topics WS #2 for Exam #13

Solve each system of equations.

1) $2x^2 - 6y^2 + 3x - 18y - 30 = 0$
 $x + 2y = -4$

2) $x^2 + y^2 + 3x + 19y + 70 = 0$
 $x - 3y = -4$

3) $-3y^2 + x - 7y + 11 = 0$
 $x - y + 2 = 0$

4) $4x^2 + 2y^2 - 7x + 3y - 38 = 0$
 $-x + y - 4 = 0$

5) $-y^2 + x + 3y + 8 = 0$
 $-y^2 + x - 18y + 113 = 0$

6) $2x^2 - y^2 + 6x - 14y - 60 = 0$
 $15x^2 - y^2 + 45x - 14y - 190 = 0$

7) $x^2 + 2y^2 - 10y - 28 = 0$
 $x^2 + 2y^2 - 13y - 10 = 0$

8) $2x^2 + 2x + y - 8 = 0$
 $11x^2 + 38x + y + 28 = 0$

Identify the vertex, focus, directrix, direction of opening, min/max value, and the x & y intercepts. Then sketch the graph.

9) $2y^2 + x - 8y + 9 = 0$

10) $6y^2 + x + 60y + 151 = 0$

11) $-y^2 + 3x - 3y + 18 = 0$

12) $-x^2 - 11x + y - 30 = 0$

Use the information provided to write the standard form equation of each ellipse.

13) Vertices: $(8, -3), (-2, -3)$
Co-vertices: $(3, 0), (3, -6)$

14) Vertices: $(17, 1), (1, 1)$
Co-vertices: $(9, 4), (9, -2)$

15) Vertices: $(-2, 0), (-2, -20)$
Foci: $(-2, -4), (-2, -16)$

16) Foci: $(10, 7), (-2, 7)$
Endpoints of major axis: $(14, 7), (-6, 7)$

17) Foci: $(7, 4), (-1, 4)$
Endpoints of major axis: $(8, 4), (-2, 4)$

18) Center: $(5, -6)$
Vertex: $(0, -6)$
Co-vertex: $(5, -3)$

Identify the points of discontinuity, holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each.

19) $f(x) = \frac{4x - 12}{x^2 - 7x + 12}$

20) $f(x) = \frac{x^2 + x - 12}{4x - 16}$

21) $f(x) = -\frac{1}{x^2 - 3x}$

22) $f(x) = \frac{x^2 - 5x + 6}{-3x + 12}$

23) $f(x) = \frac{1}{-3x^2 + 12}$

24) $f(x) = \frac{x^3 - 9x}{-3x^2 + 6x}$

25) $f(x) = \frac{x + 3}{-2x - 2}$

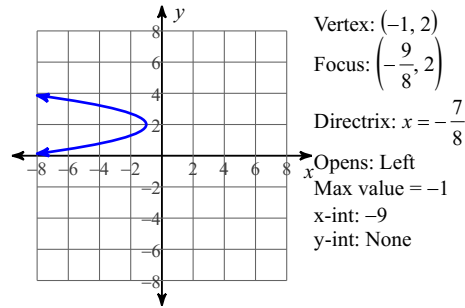
26) $f(x) = \frac{x + 4}{x - 2}$

Answers to Review Topics WS #2 for Exam #13

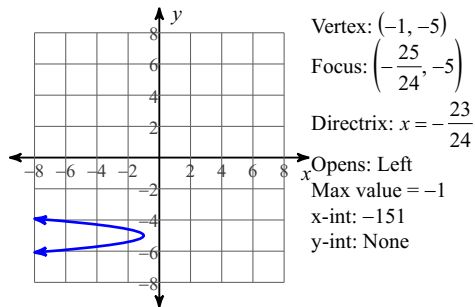
- 1) $(6, -5), (-6, 1)$
 5) $(2, 5)$
 8) $(-2, 4)$

- 2) No solution.
 3) $(-1, 1), (-5, -3)$
 6) $(2, -4), (2, -10), (-5, -4), (-5, -10)$
 9)

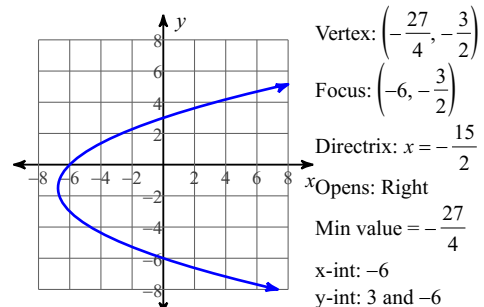
- 4) $(-1, 3)$
 7) $(4, 6), (-4, 6)$



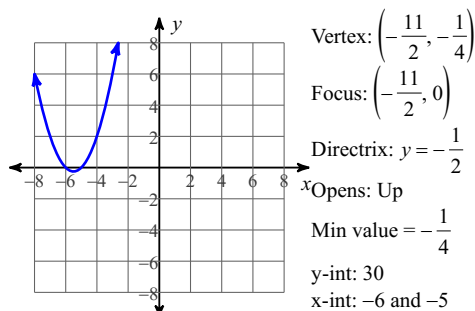
10)



11)



12)



13)
$$\frac{(x-3)^2}{25} + \frac{(y+3)^2}{9} = 1$$

14)
$$\frac{(x-9)^2}{64} + \frac{(y-1)^2}{9} = 1$$

15)
$$\frac{(x+2)^2}{64} + \frac{(y+10)^2}{100} = 1$$

16)
$$\frac{(x-4)^2}{100} + \frac{(y-7)^2}{64} = 1$$

17)
$$\frac{(x-3)^2}{25} + \frac{(y-4)^2}{9} = 1$$

18)
$$\frac{(x-5)^2}{25} + \frac{(y+6)^2}{9} = 1$$

- 19) Discontinuities: $4, 3$
 Vertical Asym.: $x = 4$
 Holes: $x = 3$
 Horz. Asym.: $y = 0$
 X-intercepts: None
 Domain: All reals except $4, 3$

- 20) Discontinuities: 4
 Vertical Asym.: $x = 4$
 Holes: None
 Horz. Asym.: None
 X-intercepts: $3, -4$
 Domain: All reals except 4

- 21) Discontinuities: $0, 3$
 Vertical Asym.: $x = 0, x = 3$
 Holes: None
 Horz. Asym.: $y = 0$
 X-intercepts: None
 Domain: All reals except $0, 3$

- 22) Discontinuities: 4
 Vertical Asym.: $x = 4$
 Holes: None
 Horz. Asym.: None
 X-intercepts: $3, 2$
 Domain: All reals except 4

- 23) Discontinuities: $2, -2$
 Vertical Asym.: $x = 2, x = -2$
 Holes: None
 Horz. Asym.: $y = 0$
 X-intercepts: None
 Domain: All reals except $2, -2$

- 24) Discontinuities: $2, 0$
 Vertical Asym.: $x = 2$
 Holes: $x = 0$
 Horz. Asym.: None
 X-intercepts: $3, -3$
 Domain: All reals except $2, 0$

25) Discontinuities: -1

Vertical Asym.: $x = -1$

Holes: None

Horz. Asym.: $y = -\frac{1}{2}$

X-intercepts: -3

Domain: All reals except -1

26) Discontinuities: 2

Vertical Asym.: $x = 2$

Holes: None

Horz. Asym.: $y = 1$

X-intercepts: -4

Domain: All reals except 2