

Sketch each ellipse. Find the coordinates of its vertices and foci.

1) $\frac{x^2}{36} + \frac{y^2}{16} = 1$

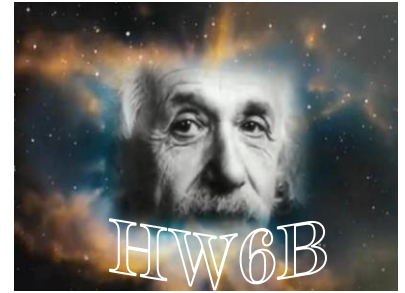
2) $\frac{x^2}{4} + \frac{y^2}{9} = 1$

3) $\frac{x^2}{16} + \frac{y^2}{25} = 1$

4) $4x^2 + 25y^2 = 100$

5) $9x^2 + 25y^2 = 225$

6) $6.25x^2 + 4y^2 = 25$



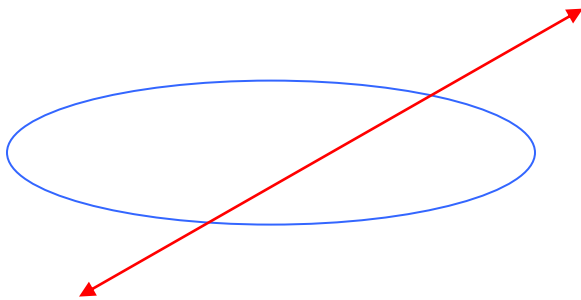
Each ellipse described has its center at the origin. Find an equation for each.

7) Vertex (7, 0); minor axis is 2 units long.

8) Focus (0, $-6\sqrt{2}$); minor axis is 6 units long.

9) Vertex (0, -13); focus (0, -5).

10) Vertex (17, 0); focus (8, 0).



11) Determine algebraically the point or points of intersection for the graphs formed by the system of equations:

$$x^2 + 4y^2 = 400$$

$$x - 2y = 28$$

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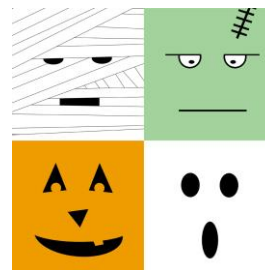
12) $\frac{(x+6)^2}{12} + \frac{(y-4)^2}{16} = 1$

13) $\frac{(x-5)^2}{25} + \frac{(y+3)^2}{9} = 1$

14) $4(x+2)^2 + (y-5)^2 = 4$

15) BONUS ROUND: Change the following equation into standard ellipse form.

$$x^2 + 25y^2 - 6x - 100y + 84 = 0$$



Can you complete us?

Find an equation for the ellipse described.

16) Center (3, 7); one focus is (6, 7);
one vertex is (8, 7)

17) Center (4, -1); one vertex is (4, -5);
one focus is (4, -3.5)

18) Vertices are (5, 9) and (5, 1);
one focus is (5, 7)

19) Center (5, 6); the ellipse is tangent to
both axes.

See Mr. Paull for graphs

1) V: (-6, 0) & (6, 0)

F: $(-2\sqrt{5}, 0)$ & $(2\sqrt{5}, 0)$

2) V: (0, -3) & (0, 3)

F: $(0, -\sqrt{5})$ & $(0, \sqrt{5})$

3) V: (0, -5) & (0, 5)

F: (0, -3) & (0, 3)

4) V: (-5, 0) & (5, 0)

F: $(-\sqrt{21}, 0)$ & $(\sqrt{21}, 0)$

5) V: (-5, 0) & (5, 0)

F: (-4, 0) & (4, 0)

6) V: (0, -2.5) & (0, 2.5)

F: (0, -1.5) & (0, 1.5)

$$7) \frac{x^2}{49} + y^2 = 1$$

$$8) \frac{x^2}{9} + \frac{y^2}{81} = 1$$

$$9) \frac{x^2}{144} + \frac{y^2}{169} = 1$$

$$10) \frac{x^2}{289} + \frac{y^2}{225} = 1$$

11) (12, -8) & (16, -6)

12) V: (-6, 0) & (-6, 8)

F: (-6, 2) & (-6, 6)

13) V: (0, -3) & (10, -3)

F: (1, -3) & (9, -3)

14) V: (-2, 3) & (-2, 7)

F: $(-2, 5+\sqrt{3})$ & $(-2, 5-\sqrt{3})$

$$15) \frac{(x-3)^2}{25} + \frac{(y-2)^2}{1} = 1$$

$$16) \frac{(x-3)^2}{25} + \frac{(y-7)^2}{16} = 1$$

$$17) \frac{4(x-4)^2}{39} + \frac{(y+1)^2}{16} = 1$$

$$18) \frac{(x-5)^2}{12} + \frac{(y-5)^2}{16} = 1$$

$$19) \frac{(x-5)^2}{25} + \frac{(y-6)^2}{36} = 1$$