"Where did Noah keep his bees?"

Find the center and the foci for the following ellipses. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $\frac{x^2}{9} + \frac{y^2}{12} = 1$

2. $\frac{(x-3)^2}{4} + \frac{(y+2)^2}{7} = 1$

3. $4(x+2)^2 + 7y^2 = 28$

4. $3x^2 + y^2 + 6x = 6$

5. $x^2 + 4y^2 - 16y = 4$

6. $x^2 + 12x + 5y^2 + 30y = -1$

7. $2x^2 + 3y^2 - 16x + 12y = -20$

8. $7x^2 + 2y^2 + 20y = 6$

Standard form & center/foci

T: C(-1, 0); F(-1, ±3)

V: C(4, -2); F(6, -2) & (2, -2)

H: C(0, 2); F($\pm\sqrt{15}$, 0)

O: C(6, 3); F(1, -3) & (14, 5)

E: C(0, 0); F(0, $\pm\sqrt{3}$)

S: C(-1, 0); F(-1, $\pm\sqrt{6}$)

C: C(0, -5); F(0, $-5\pm2\sqrt{5}$)

W: C(0, 2); F(±5, 0)

A: C(-6, -3); F(2, -3) & (-14, -3)

I: C(3, -2); F(3, $-2\pm\sqrt{3}$)

Y: C(-2, 0); F(-2, $\pm\sqrt{3}$)

R: C(-2, 0); F($-2\pm\sqrt{3}$, 0)

X: C(0, 5); F($\pm\sqrt{5}$, -5)

6	3	8	5	2	7	1	4

Answer: _____

"What's the name of the snake that joined the Canadian police force?"

Find the center and foci of each hyperbola. The answer to each problem will match a letter that will allow you to figure out the joke.

1. $\frac{y^2}{9} - \frac{x^2}{36} = 1$

2. $y^2 - 4x^2 = 16$

3. $\frac{(x+2)^2}{11} - \frac{(y-3)^2}{25} = 1$

4. $(x-1)^2 - 4(y+4)^2 = 64$

5. $4y^2 - x^2 - 16y + 2x + 11 = 0$

6. $y^2 - 3x^2 + 6x + 6y = 18$

7. $4x^2 - 25y^2 - 8x - 96 = 0$

8. $144y^2 - 25x^2 - 576y - 150x = 3249$

9. $25x^2 - 4y^2 + 100x + 24y - 36 = 0$

10. $3y^2 - 4x^2 + 12y + 24x = 36$

P: C(3,-2) and F$(3, -2\pm\sqrt{7})$

N: C(1,0) and F$(1\pm\sqrt{29}, 0)$

Y: C(1,-4) and F$(1\pm4\sqrt{5}, -4)$

H: C(0,0) and F$(0, \pm2\sqrt{5})$

O: C(-3,2), F_1(-3,15), F_2(-3,-11)

U: C(0,0) and F$(0, \pm3\sqrt{5})$

T: C(-2,3) and F$(-2\pm\sqrt{29}, 3)$

E: C(-2,3), F_1(4,3), F_2(-8,3)

M: C(1,-3) and F$(1, -3\pm4\sqrt{2})$

I: C(1,2) and F$(1, 2\pm\sqrt{5})$

6	8	1	7	9	5	3	10	4	9	2	8	7