Which Member of Fred Ferd's Family Thinks He's a Pen?

Show the solution region for each system with crosshatching or shading. The crosshatching or shading, if extended, would cover a letter. Write this letter in each box with the exercise number.

1. \( y \geq \frac{3}{4}x - 2 \)
   \( y \leq 1 \)

2. \( y \geq -2x - 3 \)
   \( y \leq \frac{1}{3}x + 2 \)

3. \( y < \frac{3}{2}x + 3 \)
   \( y < -x + 1 \)

4. \( y \leq x \)
   \( 5x + 3y > -6 \)

5. \( y + 3 > 0 \)
   \( y > -3 \)
   \( -2x - 5y \leq 5 \)
   \( y \leq \frac{2}{5}x - 1 \)

6. \( x < 2 \)
   \( x - 2y > 6 \)
   \( y < \frac{1}{2}x - 3 \)

7. \( 8x + 12y < 24 \)
   \( y \leq \frac{-2}{3}x + \frac{2}{3} \)

8. \( 10x + 10y \leq 30 \)
   \( 35x - 20y \leq 80 \)
   \( y \geq \frac{-7}{4}x - 1 \)
   \( y - 3x > 0 \)
   \( y > 3x \)

9. \( y + 2 \leq 0 \)
   \( y \leq -2 \)
   \( 2 - x \leq 0 \)
   \( x \geq 2 \)

Inequalities:
Graphing Systems of Linear Inequalities
**Situation 1. SOMETHING FISHY.**
The owner of Fred's Fish Market orders cod and salmon. He wants to buy at least 50 pounds of fish but cannot spend more than $800. Cod is $4 per pound and salmon is $7 per pound.

Let \( x \) = number of pounds of cod
Let \( y \) = number of pounds of salmon

\[
\text{inequality } \#1: \quad x + y \geq 50
\]

\[
\text{inequality } \#2: \quad 4x + 7y \leq 800
\]

Which of the following are solutions?
- S - F (40, 15)
- N - F (50, 18)
- 4 - S (30, 20)
- 10 - U (55, 5)
- 7 - R (20, 35)

**Situation 2. FLOWER POWER.**
Mr. Bloom is designing a rectangular flower garden with a fence around it. He can use no more than 80 ft of fencing. He wants the width to be at least 5 ft and the length to be at least 20 ft.

Let \( x \) = width of the garden (ft)
Let \( y \) = length of the garden (ft)

\[
\text{inequality } \#1: \quad 2x + 2y \leq 80
\]

\[
\text{inequality } \#2: \quad x \geq 5
\]

\[
\text{inequality } \#3: \quad y \geq 20
\]

Which of the following are solutions?
- 7 - S (10, 23)
- 11 - F (7, 30)
- 9 - T (18, 25)
- 3 - A (8, 35)
- 2 - I (20, 20)

**Situation 3. SPRING FLING.**
Tickets for the Spring Dance cost $3 per person or $5 per couple. To cover expenses, at least $750 worth of tickets must be sold. However, no more than 400 people can fit in the gym where the dance is being held.

Let \( x \) = number of S3 tickets sold
Let \( y \) = number of SS tickets sold

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\text{inequality } \#1: \quad 3x + 5y \geq 750
\]

\[
\text{inequality } \#2: \quad x + 2y \leq 400
\]

Which of the following are solutions?
- 5 - H (50, 10)
- 12 - I (150, 70)
- 9 - G (280, 45)
- 6 - U (300, 60)
- 3 - T (0, 200)