Match these women with their accomplishments & photographs

1. Florence Nightingale
2. Evelyn Boyd Granville
3. Ada Lovelace
4. Mary Cartwright
5. Fern Hunt
6. Emmy Noether

**a.** She worked for IBM on the Project Vanguard and Project Mercury space programs, analyzing orbits and developing computer procedures.

**b.** One of the first mathematicians working in chaos theory, she served as the President of the London Mathematical Society.

**c.** She won the Arthur S. Flemming Award for Outstanding Federal Service for her work in the computing/applied math lab at the National Institute of Standards and Technology.

**d.** People describe her as "the world's first computer programmer" because of her work on Babbage's analytical engine.

**e.** This famous mathematician made groundbreaking contributions to both abstract algebra and theoretical physics.

**f.** She was a pioneer in the graphical representation of statistics, credited with developing a form of the pie chart now known as the "polar area diagram".

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A B C D E F

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**Solutions:** 1) F, 2) D, 3) A, 4) B, 5) E, 6) C

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**Notes:**

- **A:** Florence Nightingale
- **B:** Emmy Noether
- **C:** Ada Lovelace
- **D:** Evelyn Boyd Granville
- **E:** Fern Hunt
- **F:** Mary Cartwright

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**Mathematical Problems:**

1. Solve the following equations:
   
   \[ 2 \times 37846 = 75692, \quad 2 \times 12734 = 25468, \quad 2 \times 25734 = 51468, \quad \text{etc} \]

2. Find the area:**
   
   \[ \text{Area} = \frac{1}{2} \times \text{base} \times \text{height} \]

3. Calculate the average:**
   
   \[ \text{Average} = \frac{\text{Sum}}{\text{Number of Observations}} \]

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**Science Problems:**

1. Calculate the volume of a sphere with radius 3 meters:
   
   \[ V = \frac{4}{3} \pi r^3 \]

2. Solve for the unknown variable:**
   
   \[ a = \frac{1}{2} \quad \text{and} \quad b = -1/2 \]

3. Determine the temperature:**
   
   \[ 7^\circ \text{C} = 4\text{F} \quad \text{and} \quad 4\text{F} = 7\text{C} \]

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**Geometry Problems:**

1. Find the length of a side of a square with area 36 square meters:**
   
   \[ \text{Side} = \sqrt{\text{Area}} \]

2. Calculate the perimeter of a rectangle with length 10 meters and width 5 meters:**
   
   \[ \text{Perimeter} = 2 \times (\text{Length} + \text{Width}) \]

3. Solve for the unknown variable:**
   
   \[ x = 3, \quad y = 4, \quad 5 = \text{constant} \]

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**Math Vocabulary:**

- **Equation:** A statement that two expressions are equal.
- **Average:** The sum of a group of numbers divided by the number of numbers in the group.
- **Volume:** The amount of space a shape occupies.
- **Perimeter:** The distance around a shape.
- **Side:** One of the equal lengths in a square or equilateral triangle.
- **Constant:** A value that does not change.
Problem Corner

7. Suppose $a \neq b$, and that $a - b$ and $a^2 - b^2$ are both integers.
   What should the server bring Ann?

8. A tree grows vertically on a hillside. The hill is at a 16-degree angle from the horizontal; the tree casts an 18-meter shadow up the hill when the angle of elevation of the sun measures 68 degrees.
   How tall is the tree?

9. Ann, Barb, Cath, and Deb were at dinner. Cath sat opposite Ann. Deb sat at Ann's right, opposite Barb. Barb and Deb ordered soup. Cath ordered lasagna. Ann ordered like this: "If the woman at the left of the woman opposite the woman who ordered lasagna is not having what the woman across from the woman at my left is having, then I'll have what the woman across from the woman at the right of the woman opposite me ordered. Otherwise, I'll have pizza."
   Who is older, my best friend or me?

10. This summer, my friend, my daughter, and I have a joint birthday, celebrating the fact that our average age is now 32. Eight years from now, I'll be twice as old as my daughter will be, which is funny: four years ago, my friend was 3 times as old as my daughter was.
   Who is older, my best friend or me?

11. Fill in the blanks in the following sentence:
    In this sentence, the number of occurrences of 0 is ___, of 1 is ___, of 2 is ___, of 3 is ___, of 4 is ___, of 5 is ___, of 6 is ___, of 7 is ___, of 8 is ___, and of 9 is ___.

12. It's said two wrongs don't make a right, but is it always true? Crack this code:
    \[
    \begin{array}{c}
    \text{WRONG} \\
    + \text{WRONG} \\
    \hline
    \text{RIGHT}
    \end{array}
    \]
    Each letter represents a different digit, and no "0" is allowed.

The Association for Women in Mathematics (AWM) is a non-profit organization founded in 1971. The association sponsors programs and awards to encourage women in the mathematical sciences, including

- Travel grants for women researchers,
- Mentoring travel grants for women,
- Workshops for women graduate students and post-doctoral mathematicians,
- AWM student chapters,
- Noether, Falconer and Kovalevsky Lectures,
- Ruth I. Michler Memorial Prize, AWM-Birman Research Prize, AWM-Microsoft Research Prize and AWM-Sadosky Research Prize.

To learn more about these programs and other AWM activities, please visit www.awm-math.org.