1. \( \frac{2(x-3)}{7} + 5 = 9 \)
   \[2(x-3) = 4\]
   \[2(x-3) = 28\]
   \[x - 3 = 14\]
   \[x = 17\]

2. \( |2x + 6| = 2 \)
   \[-2x + 6 = 2 \quad \text{or} \quad -2x + 6 = -2\]
   \[-2x = -4 \quad \quad -2x = -8\]
   \[x = 2 \quad \quad x = 4\]

3. \( 5x + 2 > 3x - 4 \)
   \[2x + 2 > -4\]
   \[2x > -6\]
   \[x > -3\]

4. a) \( \sqrt{40} \)
    \[= \sqrt{4 \times 10}\]
    \[= 2 \sqrt{10}\]
    b) \( 2 \sqrt{3} \times 4\sqrt{6} \)
    \[= 8 \sqrt{18}\]
    \[= 8 \times 3\sqrt{2}\]
    \[= 24\sqrt{2}\]

5. a) \( x^3y^3 \times x^4y^2 + (x^6y^4) \)
    \[= x^{10}y^5 + (x^6y^4)\]
    b) \( (p^2q^3)^2 \times p^4q^2 + (pq)^8 \times p^0\)
    \[= p^8q^6 \times p^4q^2 + (pq)^8 \times 1\]
    \[= p^{12}q^8 + p^{12}q^8 \times 1\]
    \[= 1 \times 1\]
    \[= 1\]

6. a) \( (-2)^4 \)
    \[= -2 \times -2 \times -2 \times -2\]
    \[= 16\]
    b) \( -3^4 \)
    \[= -3 \times 3 \times 3 \times 3\]
    \[= 1\]
    c) \( 2^{-4} \)
    \[= \frac{1}{2 \times 2 \times 2 \times 2}\]
    \[= \frac{1}{16}\]
d) \( (-2)^{-3} \)
\[ = \frac{1}{(-2)^3} \]
\[ = \frac{1}{-8} \]
\[ = -\frac{1}{8} \]

e) \( (-2)^2 - 2 \)
\[ = 4 - 2 \]
\[ = 2 \]

f) \( -(-2^2) - 2 \)
\[ = -(4) - 2 \]
\[ = -6 \]

7. \( \sum_{n=1}^{3} (2x + 3) = 5 \)
LHS = \( (-x + 3) + (0x + 3) + (x + 3) + (2x + 3) + (3x + 3) \)
\[ = 5x + 15 \]
RHS = 5
So \( 5x + 15 = 5 \)
\( 5x = -10 \)
\( x = -2 \)

8. a) \( 2h + 4h + 6h + 8h + 10h = \sum_{i=1}^{5} 2ih \)

b) \( \frac{-4}{5} + \frac{-4}{6} + \frac{-4}{7} + \frac{-4}{8} = \sum_{i=5}^{8} \frac{-4}{i} \)

9. Wally ran \( x \) laps. Wayne ran \( 8 \) more, so \( x + 8 \).
So, \( x + x + 8 = 46 \)
\( 2x = 38 \)
\( x = 19 \)
So Wally ran 19 laps and Wayne ran \( 19 + 8 = 27 \) laps (check: \( 19 + 27 = 46 \))

10. Let the first book have \( x \) pages. The second book therefore has \( 40 + 4x \) pages.
So, \( x + 40 + 4x = 390 \)
\( 5x = 350 \)
\( x = 70 \)
So the first book has 70 pages and the second book has \( 40 + 4 \times 70 = 320 \). (check: \( 70 + 320 = 390 \))

11. Let the middle number be \( n \). The number one less than \( n \) would be \( n - 1 \), and the number one more than \( n \) would be \( n + 1 \).

If we square \( n \) we get \( n^2 \). When we multiply \( n - 1 \) by \( n + 1 \), we get \((n - 1)(n + 1)\)
\[ = n^2 + n - n - 1 \]
\[ = n^2 - 1 \]

Hence the rule always works! Try it with three other consecutive numbers.