

1. a picture or diagram to model each of the given situations. Write an expression to model the situation and simplify.

2. The length of a rectangle is $2x^4 - 6x + 4$ and the width is $8x + 3$. Determine the perimeter of the rectangle.

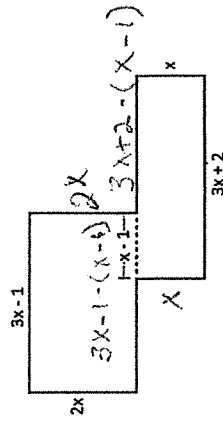
3. The sides of a triangle are represented by $6x^2 + 4$, $5x^2 - 6x$ and $12x - 3$. Determine the perimeter of the triangle.

4. Aya is building a pen in her backyard for her pet rabbits. The length of the rectangular shaped pen is $5x^2 + 3x$ and the length is represented by $4x^2 + 4$. What is the perimeter the pen?

5. Sami is building a garden in his backyard. The garden is square shaped and has a length of $4x^4 - 2$. What is the perimeter of the garden?

6. The lengths of a correct path through a maze are represented by $3x^2 + 6$, $2x^4 - x$, $5x^2 - 3$, $4x^2 - 2x^2 + 1$ and $8x + 3$. Determine the length of the path.

7. Find the perimeter for the shape below. Explain how you calculated your answer.



$$2x^4 - 6x + 4$$



$$2x^4 - 6x + 4 + 2x^4 - 6x + 4 + 8x + 3 + 8x + 3$$

$$4x^4 + 4x + 14$$

$$11x^2 + 6x + 1$$

$$5x^2 + 3x + 5x^2 + 3x + 4x^2 + 4 + 4x^2 + 4$$

$$18x^2 + 6x + 8$$

$$4x^4 - 2 + 4x^4 - 2 + 4x^4 - 2 + 4x^4 - 2$$

$$16x^4 - 8$$

$$3x^2 + 6 + 2x^2 - x + 5x^2 - 3 + 4x^2 - 2x^2 + 1 + 8x + 3$$

$$9x^2 + 3x^2 + 7x + 7$$

$$3x - 1 + 2x + 2x + 3x - 1 - (x - 1) - x - x - (x - 1) - (x - 1)$$

$$16x + 4$$

Simplify each expression.

Key

1) $(2v - 2v^2 + 4) - (8v^2 + 6v - 8) - (7 - 2v + 2v^2)$

$$-12v^2 - 2v + 5$$

2) $(8m^2 + 7m + 1) + (4m^2 - 7 + 5m) + (4 - 6m^2 - m)$

$$6m^2 + 11m - 2$$

3) $(5 + n^2 + 2n) + (3 + 5n^2 - 2n) + (2n^2 - n + 8)$

$$8n^2 - n + 16$$

4) $(2 + 5x^2 + 4x) + (5x - 3 + 8x^2) - (x^2 - 5 - 8x)$

$$12x^2 + 17x + 4$$

5) $(4k + 6k^2 + 5) + (7 - k^2 + 2k) + (1 - 7k^2 + 8k)$

$$-2k^2 + 14k + 13$$

6) $(4 - k^2 + 5k) + (2k + 1 - 7k^2) - (5 - 6k + k^2)$

$$-9k^2 + 13k$$

7) $(8 + 5m^3 - 7m) - (6m^3 + 2)$

$$-m^3 - 7m + 6$$

8) $(4b - 6 + 8b^3) - (5b^3 - 6b)$

$$3b^3 + 10b - 6$$

9) $(3 - 2k + 8k^3) + (5k + k^3)$

$$9k^3 + 3k + 3$$

10) $(5n^3 - 7n - 5) + (5n - 7)$

$$5n^3 - 2n - 12$$

11) $(5k^3 + 3k^2 + 2) - (3 - 5k^3)$

$$10k^3 + 3k^2 - 1$$

12) $(8n^2 + 8n + 6) + (5n - 2n^2)$

$$6n^2 + 13n + 6$$

13) $(4b^2 - 3 - 2b^4) + (4b^2 + 4)$

$$-2b^4 + 8b^2 + 1$$

14) $(p^3 - p - 2p^2) + (8p^3 + 8p^2)$

$$9p^3 + 6p^2 - p$$

15) $(6x^3 + 7x^4 + 2x) - (7x^4 + 2x)$

$$6x^3$$

16) $(3n^4 + 7n^2 + 2) - (3n^2 - 8)$

$$3n^4 + 4n^2 + 10$$

17) $(1 - 4v^3 + 2v^4) + (8v^4 - 4)$

$$10v^4 - 4v^3 - 3$$