

Multiplying Polynomial Applications

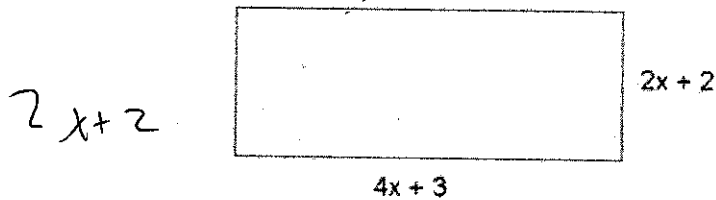
Solve for the perimeter and area of each shape below

Rectangles:

Perimeter: Add up all sides

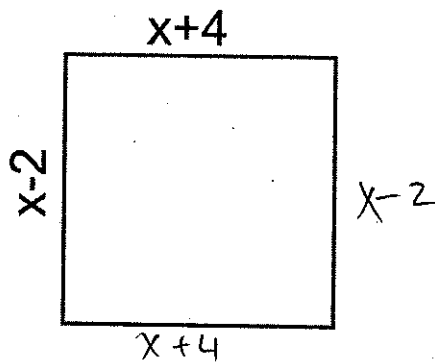
Area: multiply length x width

1.



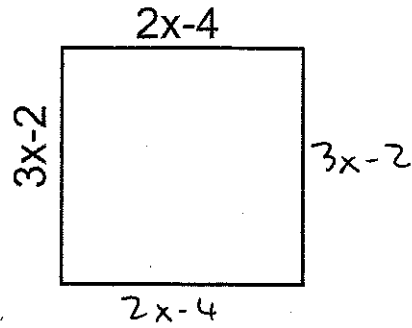
Perimeter	Area
	$(2x+2)(4x+3)$ $8x^2 + 8x + 6x + 6$ $8x^2 + 14x + 6$

2.



Perimeter	Area
$(x-2) + (x-2) + (x+4) + (x+4)$ $4x + 4$ units	$(x-2)(x+4)$ $x^2 + 4x - 2x - 8$ $x^2 + 2x - 8$ units ²

3.

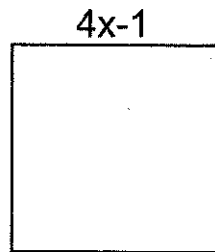


Perimeter	Area
$\underline{(3x-2)} + \underline{(3x-2)} + \underline{(2x-4)} + \underline{(2x-4)}$ $\boxed{10x - 12 \text{ units}}$	$\underline{(3x-2)}(2x-4)$ $6x^2 - 12x - 4x + 8$ $\boxed{6x^2 - 16x + 8 \text{ units}^2}$

4. Squares:

Perimeter: Add up all sides

Area: multiply side x side, or side²

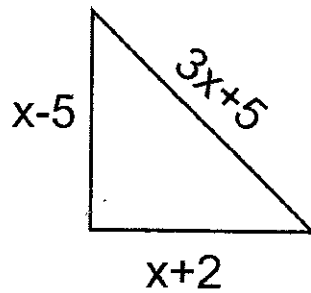


Perimeter	Area
$\underline{(4x-1)} + \underline{(4x-1)} + \underline{(4x-1)} + \underline{(4x-1)}$ $\boxed{16x - 4 \text{ units}}$ <p style="text-align: center;">or</p> $4(4x-1) = \boxed{16x - 4 \text{ units}}$	$(4x-1)^2 = (4x-1)(4x-1)$ $16x^2 - 4x - 4x + 1$ $\boxed{16x^2 - 8x + 1 \text{ units}^2}$

5. Triangles:

Perimeter: Add up all sides

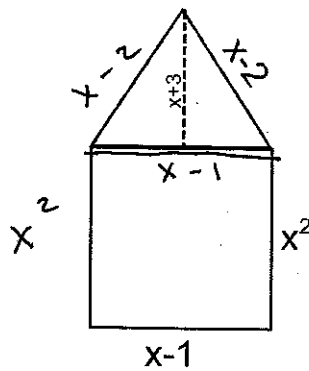
Area: $\frac{1}{2}(\text{base})(\text{height})$



Perimeter	Area
$(x-5) + (x+2) + (3x+5)$ $5x + 2 \text{ units}$	$\frac{1}{2}(x-5)(x+2)$ $\frac{1}{2}(x^2 + 2x - 5x - 10)$ $\frac{1}{2}(x^2 - 3x - 10)$

6. Challenge:

Hint: Break up into rectangle and two triangles, solve each, then add together at end



Perimeter	Area
$x^2 + (x-1) + x^2 + (x-2) + (x-2)$ $\underline{x^2} + \underline{x} - \underline{1} + \underline{x^2} + \underline{x} - \underline{2} + \underline{x} - \underline{2}$ $2x^2 + 3x - 5$	<p>Rectangle: $x^2 \cdot (x-1) = x^3 - x^2$</p> <p>Triangle: $\frac{1}{2}(x-1)(x+3)$ $\frac{1}{2}(x^2 + 2x - 3)$ $\frac{1}{2}x^2 + x - \frac{3}{2}$</p> <p>Rectangle + Triangle $x^3 - x^2 + \frac{1}{2}x^2 + x - \frac{3}{2}$ $x^3 - \frac{1}{2}x^2 + x - \frac{3}{2}$</p>