

**LEARNING OUTCOME: 5A:** I can describe and classify polynomials.

1. Which description on the right describes each expression on the left. (some may have two descriptions)

(a)  $-4x+2$  B, D, G, H

☒ A. monomial

(b)  $\frac{2}{x}$  E

☒ B. binomial

(c)  $y^2$  A

☒ C. trinomial

(d)  $-5x^2$  A

☒ D. polynomial with a coefficient of -4

(e)  $x^2-3x+5$  C, G, H

☒ E. non-polynomial

(f)  $-4x^2+2x+3$  C, D, G, H

☒ F. polynomial of degree higher than 2

(g)  $6-4x^4$  B, D, F, H

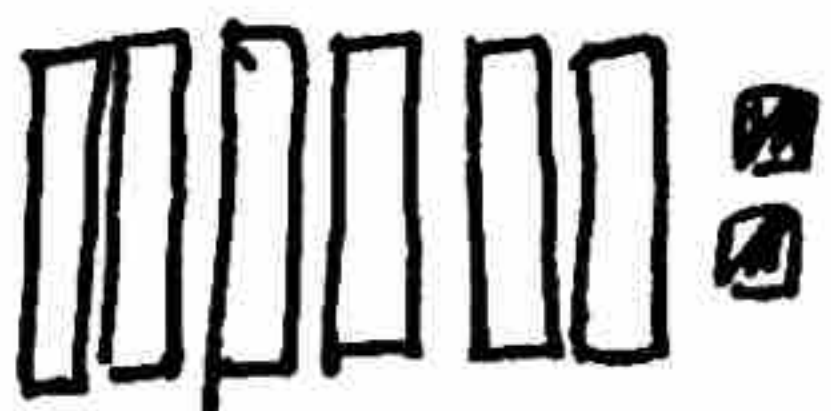
☒ G. polynomial written in descending power

☒ H. Has a constant term.

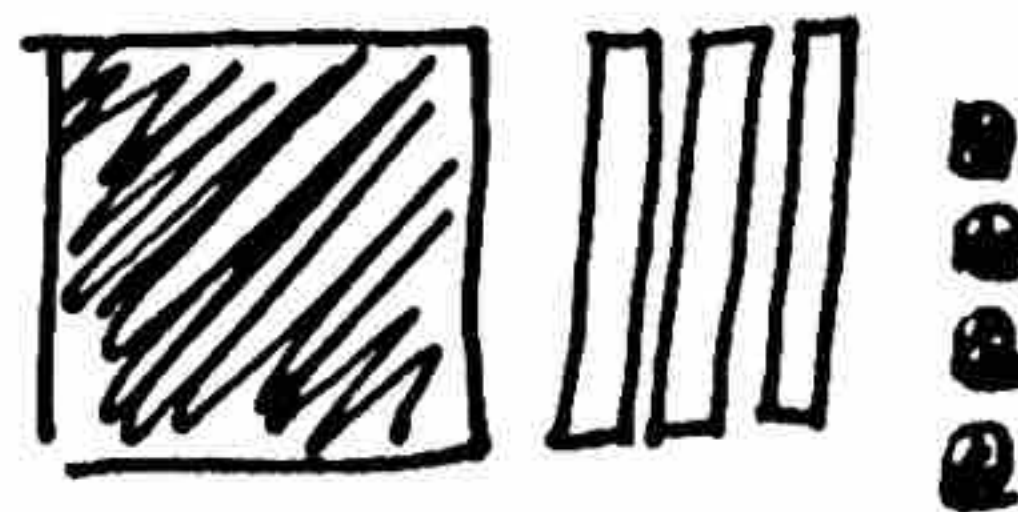
**LEARNING OUTCOME: 5B:** I can use algebra tiles to represent a polynomial

2) Represent the following using algebra tiles.

a)  $6x-2$



b)  $-x^2+3x-4$



**LEARNING OUTCOME: 5C:** I can simplify polynomials by combining like terms.

3. Simplify each of the following.

(a)  $2x-3-x+2$   
 $2x-x-3+2$   
 $\boxed{x-1}$

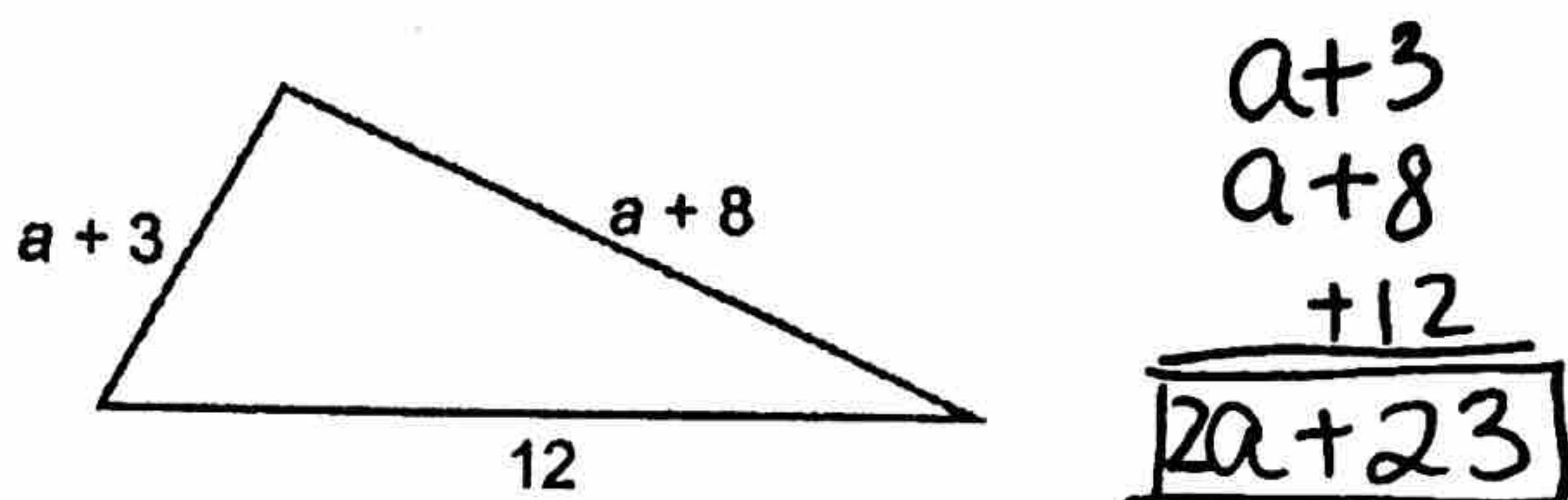
(b)  $2x^2+x-x^2-x$   $2x^2-x^2+\cancel{x-x}$   
 $\boxed{x^2}$

(c)  $-2x^2-5+2x+x^2-3-x$   
 $-2x^2+x^2+2x-x-5-3$   
 $= \boxed{-x^2+x-8}$

(d)  $10m^2+6m-2m^2-3-6m+3$   
 $\boxed{8m^2}$



4. Determine an expression for the perimeter in simplified form.



LEARNING OUTCOME: **5D**: I can add polynomials.

5. Add the following polynomials.

(a)  $(2x-3)+(-4x+1)$

$$\begin{array}{r} 2x-3 \\ -4x+1 \\ \hline -2x-2 \end{array}$$

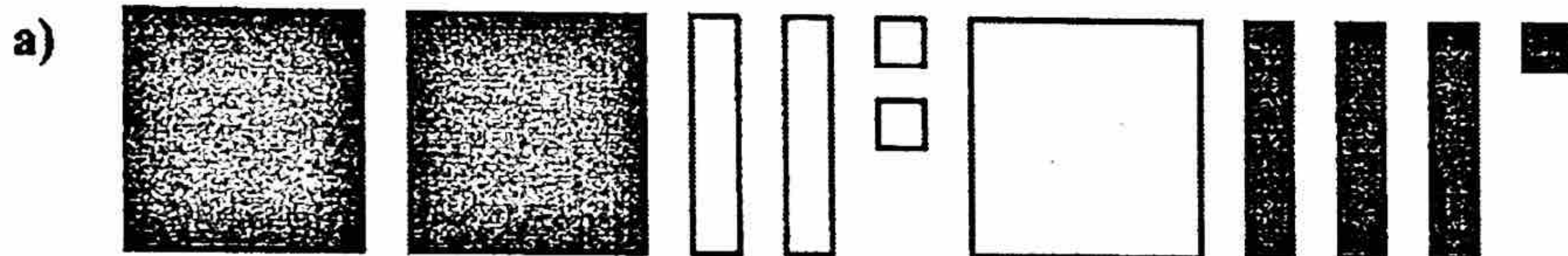
(b)  $(x^2-2)+(x^2+2)$

$$\begin{array}{r} x^2-2 \\ x^2+2 \\ \hline 2x^2 \end{array}$$

(c)  $(-2xy+x^2-3y^2)+(-y^2-xy+2x^2)$

$$\begin{array}{r} -2xy+x^2-3y^2 \\ -xy+2x^2-y^2 \\ \hline -3xy+3x^2-4y^2 \end{array}$$

6. Write a polynomial expression for the following algebra tiles. Then simplify.



$$[-2x^2+2x+2] + [x^2-3x-1]$$

$$[-x^2-x+1]$$



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

$$[x^2+3x-4]$$

LEARNING OUTCOME: **5E**: I can subtract polynomials. Simplify each of the following.

7. Subtract the following polynomials.

(a)  $(2x+3)-(5x+4)$

$$\begin{array}{r} 2x+3 \\ -5x-4 \\ \hline -3x-1 \end{array}$$

(b)  $(4-8w)-(7w+1)$

$$\begin{array}{r} -8w+4 \\ -7w-1 \\ \hline -15w+3 \end{array}$$

(c)  $(x^2+2x-4)-(4x^2+2x-2)$

$$-3x^2-2$$

(d)  $(-9z^2-z-2)-(3z^2-z-3)$

$$-12z^2+1$$



LEARNING OUTCOME: **5F**: I can multiply a polynomial by a monomial

8. Multiply the following polynomials.

a)  $3(4n-5) =$   
 $12n - 15$

b)  $3n(4n-5) =$   
 $12n^2 - 15n$

c)  $-2(4t-8) =$   
 $-8t + 16$

d)  $-2t(4t-8) =$   
 $-8t^2 + 16t$

LEARNING OUTCOME: **5G**: I can divide a polynomial by a monomial.

9. Divide the following polynomials algebraically.

$$\frac{4x^2 + 8x + 16}{4} = x^2 + 2x + 4$$

$$\frac{5x^3 - 10x^2 + 25x}{5x} = x^2 - 2x + 5$$

10. Write an expression that represents the area or perimeter of the following figures.

a) The perimeter of a rectangle with length  $7x - 3$  and width  $4x + 5$

$$2(7x - 3) + 2(4x + 5)$$

$$14x - 6 + 8x + 10 \rightarrow \boxed{22x + 4}$$

b) The area of a triangle with base  $6x$  and height  $10x + 3$

$$\frac{bh}{2} \leftarrow \text{Area of a triangle}$$

$$\frac{6x(10x + 3)}{2}$$

$$\frac{60x^2 + 18x}{2}$$

$$= \boxed{30x^2 + 9x}$$