3.5 - Collect Like Terms

MPM1D

SOLUTIONS

1. Which polynomial contains no like terms?

A)
$$2x + 5 - 3x + 2xy$$

B)
$$3x^2 + 3xy + 3$$

C)
$$4 - 9x + 9y + 3$$

D)
$$-4a^3 + 5b - 2a^2 + 7b$$

2. Classify each pair of terms as either like or unlike.

a)
$$2x$$
 and $-5x$

c)
$$-x^2$$
 and $\frac{1}{2}x^2$

like

unlike

like

d)
$$4a^2$$
 and $3a^3$

e)
$$2ab$$
 and $3a^2$

f)
$$5x^2y$$
 and $-2xy^2$

unlike

h)
$$9p^2q^3$$
 and $-4q^3p^2$

like

3. Simplify where possible

a)
$$3x + 6x$$

b)
$$2m + 5n$$

c)
$$5h + 8h + 2h$$

d)
$$7u + 4u + u$$

4. Simplify if possible

a)
$$4k - 2k$$

b)
$$8n - n$$

c)
$$3z - 7z$$

d)
$$p - 6$$

5. Simplify by collecting like terms.

a)
$$3x + 5 + 2x + 1$$

$$=5x+6$$

b)
$$2k + 3m + 4m + 6k$$

c)
$$8n + 5 - 3n - 2$$

$$=500+3$$

6. Simplify

a)
$$3x - 8 - 4 + 3$$

b)
$$2x^2 + 7x + 4x^2 + x$$

c)
$$7m + 6m^2 - 2m + m^2$$

$$= 6m^{2} + m^{2} + 7m - 2m$$

$$= 7m^{2} + 5m$$

d)
$$3k - 5 + 8 - k + 1 - 4k$$

e)
$$-3u + 2 - u^2 - 5 + 3u + 2u^2 - 3$$

7. Simplify

a)
$$2a^2 - 3ab - 6 + 4b^2 + 7 + 5ab - 3b - 2a^2$$

$$= 2a^{2} - 2a^{2} + 4b^{2} - 3ab + 5ab - 3b - 6 + 7$$

$$= 4b^{2} + 2ab - 3b + 1$$

b)
$$3mn + 6m^2 - n^2 + 3 - m^2 - 3mn + 2n^2 - 4$$

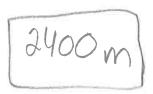
$$= 6m^{2} - m^{2} - n^{2} + 2n^{2} + 3mn - 3mn + 3 - 4$$

$$= 5m^{2} + n^{2} - 1$$

a) Write an expression for the perimeter of the field.

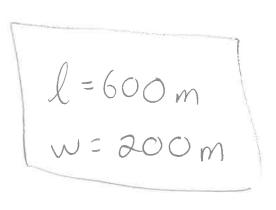
P=8w

b) Find the perimeter if the field is 300 m wide.



c) Find the length and width of the field if the perimeter is $1600\ m.$

$$1600 = 5(W)$$
 $W = 1600$
 $W = 200$
 $U = 3(200)$
 $U = 600$



9 (extension).

a) An equilateral triangle has an unknown side length, x. Write a simplified expression for its perimeter.

b) A right isosceles triangle has two sides equal to x. Which triangle, the equilateral triangle in part a) or the right isosceles triangle, has the greater perimeter? Use algebraic reasoning.

of the isosceles though has a greater