

## Chapter 5 Polynomials In Class Assignment

1. Which of the following expressions are polynomials?

i)  $x^3 - 3x + 5$

ii)  $\frac{5}{x^2} + \frac{1}{x} + 7$

iii)  $\sqrt{2x^2 + 6x}$

iv)  $7 - x$

2. Simplify:  $5x - 4 + 5 - 2x + 4x - 3 + 3x - 5$

3. Add:  $(3x^2 - 4x) + (3x^2 + 8x - 12)$

4. Add:  $(-9x^2 + 8x - 6) + (-2x^2 + 8)$

5. Subtract:  $(2x^2 + 4) - (8x - 4)$

6. Subtract:  $(7x^2 - 6) - (4x^2 - 11x + 3)$

7. Multiply:  $5(-2x^2 - 5)$

8. Divide:  $(15d^2 - 12d) \div (-3)$

9. Divide:  $\frac{18m - 30m^2}{-6m}$

16. Simplify:  $(4 - 6y + 5z)(-2x) + (9x^2 - 12x^2y - 18x^2z) \div 3x$ .

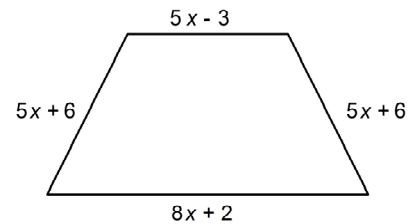
10. Divide:  $(-20x^2 + 25xy) \div 5x$

11. Determine the product:  $(-4x)(6x + 5y - 5z)$

12. a) Write the perimeter of this trapezoid as a polynomial in simplest form.

b) Determine the perimeter of the trapezoid when  $x = 5$ .

Show your work.



13. Add:  $(3x^2 - 5y^2 + xy) + (8y^2 - 4xy - 7x^2)$

14. Subtract:  $(9x^2 + 6x) + (5x + 9) - (5x^2 - 4x - 12)$   
Show your work.

15. Divide:  $\frac{25x^2 - 30x + 70y - 200y^2}{5}$

Show your work.

## Chapter 5 Polynomials In Class Assignment

### Answer Section

1. ANS:  
i and iv

PTS: 1                    DIF: Easy                    REF: 5.1 Modelling Polynomials  
 LOC: 9.PR5                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Conceptual Understanding

2. ANS:  
 $10x - 7$

PTS: 1                    DIF: Difficult                REF: 5.2 Like Terms and Unlike Terms  
 LOC: 9.PR5                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

3. ANS:  
 $6x^2 + 4x - 12$

PTS: 1                    DIF: Moderate                REF: 5.3 Adding Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

4. ANS:  
 $-11x^2 + 8x + 2$

PTS: 1                    DIF: Moderate                REF: 5.3 Adding Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

5. ANS:  
 $2x^2 - 8x + 8$

PTS: 1                    DIF: Easy                    REF: 5.4 Subtracting Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

6. ANS:  
 $3x^2 + 11x - 9$

PTS: 1                    DIF: Moderate                REF: 5.4 Subtracting Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

7. ANS:  
 $-10x^2 - 25$

PTS: 1                    DIF: Moderate                REF: 5.5 Multiplying and Dividing a Polynomial by a Constant  
 LOC: 9.PR7                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

8. ANS:

$$-5d^2 + 4d$$

PTS: 1                    DIF: Moderate        REF: 5.5 Multiplying and Dividing a Polynomial by a Constant  
 LOC: 9.PR7                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

9. ANS:

$$-3 + 5m$$

PTS: 1                    DIF: Moderate        REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial  
 LOC: 9.PR7                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

10. ANS:

$$-4x + 5y$$

PTS: 1                    DIF: Moderate        REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial  
 LOC: 9.PR7                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

11. ANS:

$$-24x^2 - 20xy + 20xz$$

PTS: 1                    DIF: Difficult        REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial  
 LOC: 9.PR7                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

12. ANS:

$$\begin{aligned} \text{a) } P &= (8x + 2) + (5x + 6) + (5x - 3) + (5x + 6) \\ &= 8x + 2 + 5x + 6 + 5x - 3 + 5x + 6 \\ &= 8x + 5x + 5x + 5x + 2 + 6 - 3 + 6 \\ &= 23x + 11 \end{aligned}$$

$$\begin{aligned} \text{b) Substitute } x &= 5. \\ P &= 23(5) + 11 \\ &= 126 \end{aligned}$$

The perimeter of the trapezoid is 126 units.

PTS: 1                    DIF: Difficult        REF: 5.3 Adding Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Problem-Solving Skills | Communication

13. ANS:

$$\begin{aligned} &(3x^2 - 5y^2 + xy) + (8y^2 - 4xy - 7x^2) \\ &= 3x^2 - 5y^2 + xy + 8y^2 - 4xy - 7x^2 \\ &= 3x^2 - 7x^2 - 5y^2 + 8y^2 + xy - 4xy \\ &= -4x^2 + 3y^2 - 3xy \end{aligned}$$

PTS: 1                    DIF: Difficult        REF: 5.3 Adding Polynomials  
 LOC: 9.PR6                TOP: Patterns and Relations (Variables and Equations)  
 KEY: Problem-Solving Skills

14. ANS:

$$\begin{aligned}
 &(9x^2 + 6x) + (5x + 9) - (5x^2 - 4x - 12) \\
 &= 9x^2 + 6x + 5x + 9 - 5x^2 + 4x + 12 \\
 &= 9x^2 - 5x^2 + 6x + 5x + 4x + 9 + 12 \\
 &= (9 - 5)x^2 + (6 + 5 + 4)x + (9 + 12) \\
 &= 4x^2 + 15x + 21
 \end{aligned}$$

PTS: 1                    DIF: Difficult            REF: 5.4 Subtracting Polynomials  
 LOC: 9.PR6              TOP: Patterns and Relations (Variables and Equations)  
 KEY: Procedural Knowledge

15. ANS:

$$\begin{aligned}
 &\frac{25x^2 - 30x + 70y - 200y^2}{5} \\
 &= \frac{25x^2}{5} + \frac{-30x}{5} + \frac{70y}{5} + \frac{-200y^2}{5} \\
 &= 5x^2 + (-6x) + 14y + (-40y^2) \\
 &= 5x^2 - 6x + 14y - 40y^2
 \end{aligned}$$

PTS: 1                    DIF: Difficult            REF: 5.5 Multiplying and Dividing a Polynomial by a Constant  
 LOC: 9.PR7              TOP: Patterns and Relations (Variables and Equations)  
 KEY: Problem-Solving Skills

16. ANS:

$$\begin{aligned}
 &(4 - 6y + 5z)(-2x) + (9x^2 - 12x^2y - 18x^2z) \div 3x \\
 &= -2x(4) + (-2x)(-6y) + (-2x)(5z) + \frac{9x^2}{3x} + \frac{-12x^2y}{3x} + \frac{-18x^2z}{3x} \\
 &= -8x + 12xy + (-10xz) + 3x + (-4xy) + (-6xz) \\
 &= -8x + 12xy - 10xz + 3x - 4xy - 6xz \\
 &= -5x + 8xy - 16xz
 \end{aligned}$$

PTS: 1                    DIF: Difficult            REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial  
 LOC: 9.PR7              TOP: Patterns and Relations (Variables and Equations)  
 KEY: Problem-Solving Skills