Chapter Review 5

Chapter 5 Review

Key Words

For #1 to #6, choose the letter that best matches each description. You may use each letter more than once or not at all.

1. $3w$ is a like term
2. has three terms
3. monomial
4. opposite polynomial to $3x - 1$
5. polynomial of degree 2
6. contains the constant term 3

A $-3x + 1$
B $-4d + 3$
C $1 - 3x^2$
D $-w$
E $x - 6y + 2$
F $-3x - 1$
G $3f - 1$

5.1 The Language of Mathematics, pages 174–182

7. For each expression, identify the number of terms and whether the expression is a monomial, binomial, trinomial, or polynomial.
   a) $5 - p + px - p^2$
   b) $3f - q$
   c) $-2a$
   d) $5xy - 27x^2 + 2$

8. What is the degree of each polynomial? Explain how you found your answers.
   a) $6x^2$
   b) $ab - 7a + 3$
   c) $3 - y$

9. Provide an example of each of the following.
   a) binomial
   b) polynomial with three terms
   c) polynomial of degree 2
   d) monomial that is a constant term

10. Model each expression.
    a) $1 - v$ b) $3x^2 - 2x + 1$

11. What expression is shown by each model?
    a) 
    b) 
    c) 

12. You are selling used video games for $10 and used books for $4. The expression $10x + 4y$ provides a general statement of the value of your sales before tax.
    
    a) What do the variables x and y represent?
    b) How much money do you receive if you sell 6 video games and 11 books?
    c) Write a new expression for selling DVDs at $7.25 and CDs at $5.

5.2 Equivalent Expressions, pages 182–189

13. Tom claims that 4 and $4x$ are like terms since they both contain 4. Do you agree? Explain.

14. For each expression, identify the coefficient, variables, and exponent for each variable.
    a) $8xy^2$ b) $-c^2$ c) -4

15. Identify the like terms in each group.
    a) $7r$ $3s$ $-s^2$ 7 $4rs$ $-8s$
    b) $-2x^2$ $3xy$ x^2 $5.3y$ 2 $3xy$

16. Explain how you can tell like terms by looking at them. Give four different sets of examples with at least three like terms in each set.

17. The following diagrams represent terms in an expression. Draw a new diagram with like terms together and write an expression for the simplified answer.
    

18. Use materials or diagrams to model each expression and show how to combine like terms. What is the simplified expression?
    a) $3 - 2x + 1 + 5x$
    b) $2x^2 - x + 4 - x^2 + 5x - 1$

19. Combine like terms.
    a) $4a + 3 + 9a + 1$
    b) $2b^2 - 5b - 4b^2 + 8b$
    c) $1 - c + 4 + 2c - 3 + 6c$

20. Draw a shape with a perimeter represented by $(4x) + (3x - 1) + (x + 3) + (x - 2)$, where each quantity in parentheses represents the length of a side. Find a simpler expression for the perimeter by combining like terms.

21. Kara and Jasmine go to Splash-o-mania water park. The entrance fee is $20.00. Kara rents a locker for $1.50 per hour. Jasmine rents a tube for $3.00 per hour.
    
    a) What is an expression that represents the cost for Kara?
    b) What is an expression that represents the cost for Jasmine?
    c) What is a simplified expression for the total cost for both Kara and Jasmine to stay at the water park together for any number of hours?

5.3 Adding and Subtracting Polynomials, pages 190–199

22. a) Simplify each of the algebraic expressions.
    $(4x - 3) + (x - 1)$ $(4x - 3) - (x - 1)$
    b) How are the processes similar? How are they different?

23. Is $2x^2 - 3x$ the opposite of $3x - 2x^2$? Show how you know.

24. For each of the following expressions, what is the opposite?
    a) -3 b) $7 - a$ c) $x^2 - 2x + 4$

25. a) Show how to simplify the following addition. Use two different methods.
    $(3p + 4q - 9) + (2 - 5q - p)$
    b) Which method do you prefer? Why?

26. Combine like terms.
    a) $(-p + 7) + (4p - 5)$
    b) $(a^2 - a - 2) - (5 - 3a^2 + 6a)$

27. Complete the subtraction pyramid. Find the value in any box by subtracting the two expressions in the boxes immediately below it. Subtract in order from left to right.
    

28. An end-of-year class party has a fixed cost of $140 to cover printing, decorations, and awards. In addition, it costs $12 to feed each person who attends.
    a) What is an expression for the total cost of the party? What does your variable represent?
    b) Create a short scenario to generate an addition or subtraction question with polynomials. Simplify by combining like terms.

***MathLinks 9*, pages 200–201**

Suggested Timing
40–50 minutes

Materials
- concrete materials, such as algebra tiles

Blackline Masters
Master 6 Square Dot Paper
Master 7 Isometric Dot Paper
Master 8 Centimetre Grid Paper
Master 9 0.5 Centimetre Grid Paper
Master 11 Algebra Tiles (Positive Tiles)
Master 12 Algebra Tiles (Negative Tiles)
BLM 5–5 Section 5.1 Extra Practice
BLM 5–7 Section 5.2 Extra Practice
BLM 5–9 Section 5.3 Extra Practice

Planning Notes

Have students work individually or in pairs to complete the review questions. If they encounter difficulties, remind them to refer to their Foldable, their worked exercises for the section, their concept map, their Math Learning Log, or the modelled examples in the appropriate section of the student resource.

Allow students to work in pairs for #1 to 6. Then, have students complete the remaining questions independently. When they are finished, have students list the questions they found difficult. Provide an opportunity to discuss these questions and have students share alternative strategies for answering them. Also, encourage students to refer to their Foldable or to look up examples and other exercises related to the questions on their list.

Meeting Student Needs

- Students who require more practice on a particular topic may refer to **BLM 5–5 Section 5.1 Extra Practice**, **BLM 5–7 Section 5.2 Extra Practice**, and **BLM 5–9 Section 5.3 Extra Practice**.
- Allow students to complete the Chapter Review using a combination of verbal description, diagrams, and written answers.

ELL

- Assign fewer word problems to English language learners.

Gifted and Enrichment

- Some students may already be familiar with the skills handled in this review. To provide enrichment and extra challenge for gifted students, go to www.mathlinks9.ca and follow the links.

Assessment	Supporting Learning
Assessment *for* Learning	
Chapter 5 Review The Chapter 5 Review is an opportunity for students to assess themselves by completing selected questions in each section and checking their answers against the answers in the back of the student resource.	• Allow students to complete the Chapter Review using any combination of manipulatives (e.g., algebra tiles), diagrams, or symbols to model and solve equations. If you do not have algebra tiles available in your classroom, provide students with **Master 11 Algebra Tiles (Positive Tiles) and Master 12 Algebra Tiles (Negative Tiles)**. • You may want to provide students with **Master 6 Square Dot Paper, Master 7 Isometric Dot Paper, Master 8 Centimetre Grid Paper, or Master 9 0.5 Centimetre Grid Paper** to assist them with their drawing in #20. • Have students check the contents of the What I Need to Work On section of their Foldable and do at least one question related to each listed item. • Have students revisit any section that they are having difficulty with prior to working on the chapter test.