

17.



18. a) $399d + 160$; d represents the number of days the backhoe is rented. b) $550d + 160$ c) $949d + 160$ d) $151d$

19. a) $-x + 5 + 3x + 1$ b) A: $(-x + 5) - (4x - 3) = -5x + 8$; B: $(3x + 1) - (4x - 3) = -x + 4$

20. a) $17n + 2150$ b) \$12 350 c) The expression represents the difference in the cost of printing and the cost of shipping; $13n + 1850$

21. The second line should be $4p^2 - p + 3 - p^2 - 3p + 2$, and the result of $(-p - 3p)$ is not $-3p$, so the answer should be $3p^2 - 4p + 5$.

22. a) $10x - 12$ b) $2a^2 - a - 4$ c) $5t^2 - 6t + 9$ d) $-2.3x + 0.4$

23. a) $3x^2 + 5x - 3$



b) $x^2 - 5x - 3$



24. $4x^2 + 2x$

25. a) Example: Assume you also pay \$0.12 for punctuation. For St. Mary's High School,

$$C = (25)(0.12)(31) + (25)(0.12)(19)$$

b) Example: For St. Mary's High School,

$$C = (25)(0.12)(31) + (25)(0.12)(19) + (25)(17.95)$$

c) Example: $C = (25)(17.95) + (25)(0.12)(n)$, where n represents the number of letters.

$$d) (3n + 448.75) + (3n + 448.75) = 6n + 897.5$$

26. a) \$37 b) \$35 c) $7l + 5s + 38$, assuming at least one large print and at least one small print.

$$27. w + 23 + w + 8 + w + 23 + w + 8 = 4w + 62$$

$$28. a) (-n^2 + 3600n) - (-3n^2 + 8600)$$

$= 2n^2 + 3600n - 8600$ b) profit; Example: Replacing n with 20 in the expression $2n^2 + 3600n - 8600$ yields a positive answer of \$64 200.

29. $1004x$

30. $8w + 142$

Chapter 5 Review, pages 200–201

1. D

2. E

3. D

4. A

5. C

6. B

7. a) 4 terms, polynomial b) 2 terms, binomial

c) 1 term, monomial d) 3 terms, trinomial

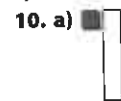
8. a) This is a degree 2 polynomial because the term with the highest degree ($6x^2$) has a degree of 2.

b) This is a degree 2 polynomial because the term with the highest degree (ab) has a degree of 2.

c) This is a degree 1 polynomial because the term with the highest degree (y) has a degree of 1.

9. a) Example: $3y - 11$ b) Example: $a + 2b - 7c$

c) $m^2 - 4$ d) 18



11. a) $x^2 - 3x + 2$ b) $-2x^2 + x$ c) $-3x + 2$

12. a) x represents the number of video games sold and y represents the number of books sold. b) \$104

c) $7.25d + 5c$, where d represents the number of DVDs and c represents the number of CDs

13. One term has the variable x ; the other does not have the variable x . So, the two terms cannot be like terms.

14. a) coefficient: 8, variables: x and y , exponent: 2

b) coefficient: -1 , variable: c , exponent: 2

c) There are no coefficients or variables because this term is a constant.

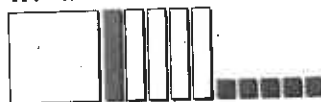
15. a) $3s$ and $-8s$ b) $-2x^2$ and x^2 ; $3xy$ and $3xy$

16. Example: Like terms must be identical except for the coefficients. Four sets of examples that contain at least three like terms are:

a) $16z$, x , $2z$, $-z$, y b) $-ab$, a , $4b$, $6ab$, $-2ba$

c) m , m^2 , $-m$, m^3 , $6m$ d) xy , $4yx$, $-11yx$, $10s^2$, $-4yx$

17. $-x^2 - 3x + 5$



18. a) $4 + 3x$

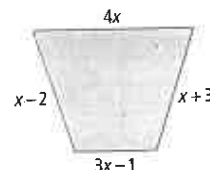


b) $x^2 + 4x + 3$



19. a) $13a + 4$ b) $-2b^2 + 3b$ c) $7c + 2$

20. Perimeter = $9x$



21. a) $20 + 1.50n$, where n represents the number of hours renting the locker b) $20 + 3n$, where n represents the number of hours renting the tube c) $40 + 4.5n$

22. a) $5x - 4$, $3x - 2$ **b)** Example: The processes are similar in that the like terms were combined. The processes are different in that one involved addition and the other involved subtraction.

23. Yes. Example: The opposite term of $2x^2$ is $-2x^2$ and the opposite term for $-3x$ is $3x$.

24. a) 3 **b)** $-7 + a$ **c)** $-x^2 + 2x - 4$

25. a) Example: Group together the like terms:

$$(3p - p) + (4q - 5q) + (-9 + 2) = 2p - q - 7.$$

Another method is to change the order of the terms and line up the polynomials vertically.

$$\begin{array}{r} 3p + 4q - 9 \\ -p - 5q + 2 \\ \hline 2p - q - 7 \end{array}$$

b) Example: The first method is preferred because the terms are grouped horizontally.

26. a) $3p + 2$ **b)** $4a^2 - 7a - 7$

27.

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

28. a) $140 + 12n$, where n represents the number of people attending **b)** Example: Another class decides to spend more on food and refreshments for their party and less on printing, decorations, and awards. Their cost for food is \$15/person and \$100 for the other items. The sum of the costs for both classes is $(140 + 12n) + (100 + 15n) = 240 + 27n$. The difference of the costs is $(140 + 12n) - (100 + 15n) = 40 - 3n$.

Chapter 6

6.1 Representing Patterns, pages 217–219

4. a) Example: Every time an octagon is added the number of sides increases by 6.

Number of Octagons, n	Number of Sides, s
1	8
2	14
3	20
4	26

c) $s = 6n + 2$; s represents number of sides, n represents number of octagons **d)** 104 **e)** 120

Figure Number, n	Number of Circles, c
1	5
2	8
3	11

b) Example: Three circles are added for each subsequent figure. **c)** $c = 3n + 2$; c represents number of circles, n represents figure number **d)** 53 **e)** 36

Figure Number, n	Number of Green Tiles, t
1	8
2	12
3	16

b) Example: Four green tiles are added for each subsequent figure. **c)** $t = 4n + 4$; t represents number of green tiles, n represents figure number **d)** 100 **e)** 43

Term, t	Value, v
1	7
2	16
3	25
4	34
5	43

b) $v = 9t - 2$ **c)** 1105 **d)** 40

8. a) Each subsequent term has one additional heptagon.

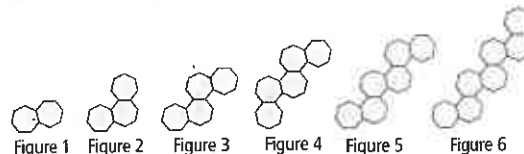


Figure Number, n	Perimeter, P (cm)
1	12
2	17
3	22
4	27
5	32
6	37

c) $P = 5n + 7$; P represents perimeter in centimetres, n represents figure number **d)** 67 cm **e)** 22

Term, t	Value, v
1	-5
2	-8
3	-11
4	-14
5	-17

b) $v = -3t - 2$ **c)** -149 **d)** 39

10. a) $y = 3x + 13$ **b)** $p = 7r + 17$ **c)** $t = 2.7k - 4$

d) $w = -3.5f + 3$

11. a) $s = 4t + 2$, s represents number of seats, t represents number of tables **b)** 22 **c)** Example: Substitute $t = 5$ into the equation and solve for s . **d)** 7

Number of T-Shirts, n	Cost, C (\$)
0	125
5	200
10	275
15	350
35	650
55	950

b) $C = 15n + 125$; C represents cost, n represents number of T-shirts. The numerical coefficient is the cost for each additional T-shirt. **c)** \$5795 **d)** 148

13. a) $t = 2s - 4$; t represents number of tiles, s represents size of frame **b)** 56 **c)** 100 cm by 100 cm