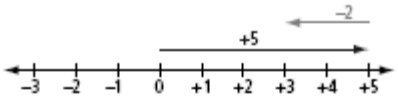
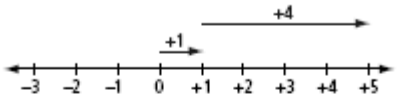
MathLinks 9 Practice and Homework Book
Chapter 5 Answers

5 Get Ready

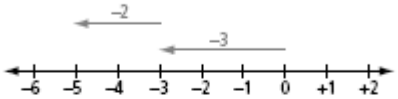
1. a) $+3$



b) $+5$



c) -5

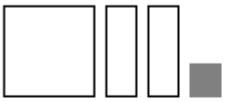


2. a) $(-2) + (+5) = +3$ b) $(-1) + (-2) = -3$
   c) $(-3) + (+7) = +4$
3. a) $+5$ b) -4 c) -13 d) $+2$
4. a) $+4$ b) -5 c) $+3$ d) $+10$
5. a) NC: 2, V: x, C: -7
   b) NC: -3, V: b, C: $+5$
   c) NC: 1, V: t, C: -4
   d) NC: -6, V: r, C: $+3$
6. Examples:
   a) $s - 5$, where s is Sarah's sister's age
   b) $2l - 3$, where l is the length
   c) $p + 14$, where p is the perimeter of the triangle
   d) $\frac{1}{2}n$ or $\frac{n}{2}$, where n is the number of tickets the school expected to sell
7. a) $p + p + p + p$ or $4p$
   b) Example: The length of the rectangle is 8 units more than its width.

5.1 The Language of Mathematics

1. symbols, variables
2. polynomial, monomial, binomial, trinomial
3. exponents, highest
4. a) 2; binomial b) 1; monomial c) 3; trinomial
   d) 4; polynomial
5. a) 2; 2 b) 2; 2 c) 1; 0 d) 2; 3
6. a) $4c^2 - 3c + 2$, $g + h + j$
   b) $4c^2 - 3c + 2$, $5p^2 - r$, $4ab$ c) -12
   d) $4ab$, -12 e) $4c^2 - 3c + 2$, $4ab$
7. a) $x^2 + x - 4$ b) $-2x^2 - 3$ c) $x^2 - 3x$
8. a)

b)

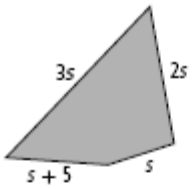


9. a) $x^2 + 7$ b) $3x - 9$ c) $4x$
10. a) $5n$ b) $w(w + 5)$ or $w^2 + 5w$ c) $0.8x + 40$

5.2 Equivalent Expressions

1. a) a, b b) -7; 1 for w, 2 for x c) No
2. x^2 should be circled in each term; $-2x^2$
3. No. They are not like terms because either the variables differ or the exponents of the variables differ.
4. a) 1; 1 b) -3; 1 c) 6; 2 d) no value; 0
   e) -1; 2 f) 1; 2
5. a) $-cd$, $-xy$ b) $-cd$, $-xy$, $-3jk$ c) k^2
   d) $9r$, $4x$
6. a) $3r$, $-r$ b) $-4y$, $0.3y$, $\frac{y}{2}$ c) cd, $6cd$
7. Examples:
   a) $5c^2 - c^2 - 5c + c + 9 - 8$
   b) $3m^2 + 2m^2 + 8m - 6m - 9 + 6$
   c) $6d^2 - 5d^2 - 8d + 3d + 7 - 2$
8. The order of the terms may vary.
   a) $-b^2 + 5b^2 + 6 - 8 + 9$; $4b^2 + 7$
   b) $4t^2 - 3t^2 + 7t + 6t - 5 + 14$; $t^2 + 13t + 9$
   c) $-2n^2 - 3n^2 + 9n + 5n + 3 - 7$;
   $-5n^2 + 14n - 4$
   d) $3y^2 - 6y^2 + 3y + 2y + 4 - 6 - 5$;
   $-3y^2 + 5y - 7$
9. $3b + 6$

10. a) Example:



I made the shortest side, s,10 units. If $s = 10$, then $s + 5$ is 15 units, $2s$ is 20 units, and $3s$ is the longest at 30 units.

b) $7s + 5$

11. a) $C = 70n + 215$ b) \$460

5.3 Adding and Subtracting Polynomials

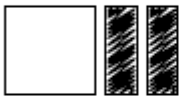
1. A **2.** opposite

3. a) $8y - 2$ b) $-b^2 + 2$ c) $-4s^2 + 7s - 6$

4. a) $4d - 1$ b) $-6m^2 - 5$ c) $-r^2 + r - 9$

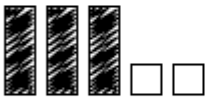
5. B

6. a)



$-x^2 + 2x$

b)



$3x - 2$

7. a) $3y^2$ b) $-6g + 3$ c) $-2b^2 + 4b - 7$
d) $4d^2 + 3d + 6$ e) $k^2 + 8k - \frac{1}{2}$

8. a) $(3r - 5) + (-5r - 2)$; $-2r - 7$
b) $(6 - 3f) + (-4 + 5f)$; $2 + 2f$
c) $(-4n^2 + 5) + (n^2 + 9)$; $-3n^2 + 14$
d) $(6a^2 + 2a - 5) + (-4a^2 - 5a - 7)$; $2a^2 - 3a - 12$

9. a) $(x + 3) + (2x + 2) + (2x)$
b) $5x + 5$ c) $x = 4$; Verify: $5(4) + 5 = 25$

10. a) $x + 2x + (x - 10)$ b) $4x - 10$

5 Chapter Link

1. Examples: a) $5x^2 - 3x + 10$ b) $-3x^2 + xy$

2. a) $2d - 9$ b) $(2a^2 + a + 3)$ c) $(2r^2 + r + 3)$

3. a) Example: Let d = days and k = kilometres: $(35d + 0.2k) + (15d) + 200$
b) \$460

5 Vocabulary Link

1. polynomial
2. like terms
3. term
4. trinomial
5. binomial
6. descending
7. monomial
8. algebra
9. degree of a term
10. degree of a polynomial

Chapters 1–5 Review

1. a) $3x^2 - 2x + 7$; 3, 2, trinomial
b) 3; 1, 0, monomial
c) $9x^2 + 5y^2 + 6xy + 6x + 5y$; 5, 2, polynomial

2. a) -3; x, y; 1 for x, 2 for y b) -1; a; 3
c) none; none; none

3. $(-4)^3$, 7, $(-2)^4$, 5^2, 2^5

4. Examples:
a) 37, 38.44 b) 180, 182.25 c) 0.05, 0.0529
d) 0.30, 0.3249

5. A′(−1, 4), B′(−3, 2), C′(−7, 2), D′(−7, 6), E′(−1, 6)
Yes; rotational symmetry of order 2.

6. a) = b) < c) > d) <

7. 462.4 cm³

8. 12; 30°, $\frac{1}{12}$

9. a) approximately 306 124 000
b) approximately 11 213 333
c) approximately $27\frac{3}{10}$

10. a) $\frac{469}{486}$ b) -0.119

11. 12 756.2 km

12. a) 607. 5 cm² b) 445.5 cm² c) 506.3 cm²

13. No, the shapes are not similar because the corresponding angles are not equal in measure.