

N: #8 (a,b,c)
A/E: #9 (a,b,c) #17a

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8.) Use a personal strategy to add.

- a) $(6x + 3) + (3x + 4)$
 b) $(5b - 4) + (2b + 9)$
 c) $(6 - 3y) + (-3 - 2y)$
 d) $(-n + 7) + (3n - 2)$
 e) $(-4s - 5) + (6 - 3s)$
 f) $(1 - 7h) + (-7h - 1)$
 g) $(8m + 4) + (-9 + 3m)$
 h) $(-8m - 4) + (9 - 3m)$

9.) Add. Which strategy did you use each time?

- a) $(4m^2 + 4m - 5) + (2m^2 - 2m + 1)$
 b) $(3k^2 - 3k + 2) + (-3k^2 - 3k + 2)$
 c) $(-7p - 3) + (p^2 + 5)$
 d) $(9 - 3t) + (9t + 3t^2 - 6t)$
 e) $(3x^2 - 2x + 3) + (2x^2 + 4)$
 f) $(3x^2 - 7x + 5) + (6x - 6x^2 + 8)$
 g) $(6 - 7x + x^2) + (6x - 6x^2 + 10)$
 h) $(1 - 3r + r^2) + (4r + 5 - 3r^2)$

17.) Add.

- a) $(3x^2 - 2y^2 + xy) + (-2xy - 2y^2 - 3x^2)$
 b) $(-5q^2 + 3p - 2q + p^2) + (4p + q + pq)$
 c) $(3mn + m^2 - 3r^2 + 5m) + (7r^2 - 8n + 10)$
 d) $(3 - 8f + 5g - f^2) + (2g^2 - 3f + 4g - 5)$

Adding Polynomials

N: #5 (a,b,c)
#6 (a,b)
#7 (a)

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5. Subtract

- a) $(5r) - (3r)$ b) $(5r) - (-3r)$
 c) $(-5r) - (3r)$ d) $(-5r) - (-3r)$
 e) $(3r) - (5r)$ f) $(-3r) - (5r)$
 g) $(3r) - (-5r)$ h) $(-3r) - (-5r)$

Apply

6. Subtract

- a) $(5x + 3) - (3x + 2)$
 b) $(5x + 3) - (3x - 2)$
 c) $(5x + 3) - (-3x + 2)$
 d) $(5x + 3) - (-3x - 2)$

7. Subtract

- a) $(3s^2 + 2s + 4) - (2s^2 + s + 1)$
 b) $(3s^2 - 2s + 4) - (2s^2 - s + 1)$
 c) $(3s^2 - 2s - 4) - (-2s^2 + s - 1)$
 d) $(-3s^2 + 2s - 4) - (2s^2 - s - 1)$

8. Subtract

- a) $(3x + 7) - (-2x - 2)$
 b) $(b^2 + 4b) - (-3b^2 + 7b)$
 c) $(-3x + 5) - (4x + 3)$
 d) $(4 - 5p) - (-7p + 3)$
 e) $(6x^2 + 7x + 9) - (4x^2 + 3x + 1)$
 f) $(12m^2 - 4m + 7) - (8m^2 + 3m - 3)$
 g) $(-4x^2 - 3x - 11) - (x^2 - 4x - 15)$
 h) $(1 - 3r + r^2) - (4r + 5 - 3r^2)$

H/E: #8 (a,b,e,f)
#15 (a,b)

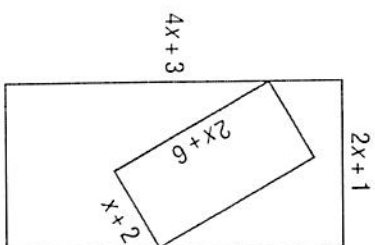
#17 (Expert only)

15. Subtract.

- a) $(r^2 - 3rs + 5s^2) - (-2r^2 - 3rs - 5s^2)$
 b) $(-3m^2 + 4mn - n^2) - (5m^2 + 7mn + 2n^2)$
 c) $(5cd + 8c^2 - 7d^2) - (3d^2 + 6cd - 4c^2)$
 d) $(9e + 9f - 3e^2 + 4f^2) - (-f^2 - 2e^2 + 3f - 6e)$
 e) $(4jk - 7j - 2k + k^2) - (2j^2 + 3j - jk)$

Take It Further

17. The diagram shows one rectangle inside another rectangle. What is the difference in the perimeters of the rectangles?



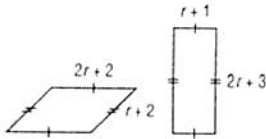
Subtracting Polynomials

5.3 Adding Polynomials, page 228

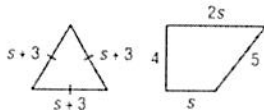
3. a) $(3x + 5) + (-2x + 2)$
 b) $(-2x^2 + 4x - 2) + (2x^2 + 4x + 8)$
 c) $(3x^2 - 6x + 4) + (-x^2 - 4x + 2)$
4. $4x^2 + 1$
5. a) $7g + 7$ b) -1
 c) $6p - 5$ d) $-m + 11$
6. a) $5x - 1$ b) $x^2 - 3x$
 c) $-5x^2 + 2x + 12$
8. a) $9x + 7$ b) $7b + 5$
 c) $-5y + 3$ d) $2n + 5$
 e) $-7s + 1$ f) $-14h$
 g) $11m - 5$ h) $-11m + 5$
9. a) $6m^2 + 2m - 4$ b) $-6k + 4$
 c) $p^2 - 7p + 2$ d) $3t^2 + 9$
 e) $5x^2 - 2x + 7$ f) $-3x^2 - x + 13$
 g) $-5x^2 - x + 16$ h) $-2r^2 + r + 6$
10. a) i) $(2n + 1) + (n + 5) + (2n + 5) = 5n + 11$
 ii) $(7r + 2) + (7r + 2) + (7r + 2) + (7r + 2) = 28r + 8$
 iii) $(6t + 5) + (2t + 1) + (6t + 5) + (2t + 1) = 16t + 12$
 iv) $(f + 2) + (3f + 1) + (f + 2) + (3f + 1) = 8f + 6$

11. Answers will vary. For example:

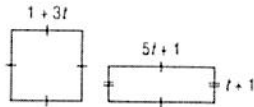
a)



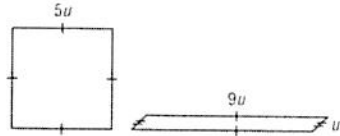
b)



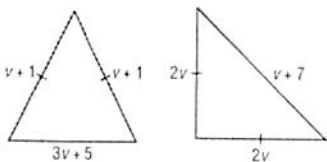
c)



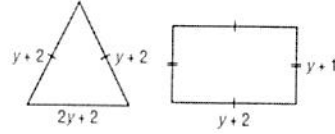
d)



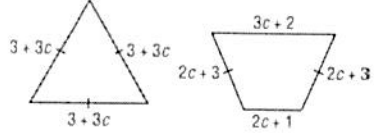
e)



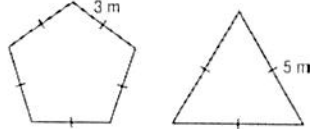
f)



g)



h)



12. No, the student made errors in simplifying. $-7x - 5x = -12x$, not $-2x$, and $3 + 9 = 12$, not 1. The correct answer is: $3x^2 - 12x + 12$

13. a) Answers will vary. For example: $-2x^2 + 2x + 1 = (-x^2 + x + 1) + (-x^2 - x)$
 b) There are many possibilities.

14. $8m^2 + 8m - 4$

15. a) $2x^2 + 3x - 1$ b) $-x^2 - 2x + 6$
 c) $x^2 - 4x - 2$ d) $-4x^2 - 6x - 3$
 e) $-3x^2 - 5x + 1$ f) $-3x^2 - 7x + 2$

16. a) $-5x^2 - 3x + 1$

b) The coefficients of the like terms are opposites.

17. a) $-4y^2 - xy$ b) $p^2 - 5q^2 + 7p - q + pq$
 c) $m^2 + 4n^2 + 5m - 8n + 3mn + 10$
 d) $-f^2 + 2g^2 - 11f + 9g - 2$

18. a) $3x + 2y + 2$

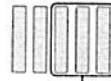
19. There are many possibilities.

For example: $(x + y + 1)$, $(x + y + 1)$, $(x + 3y + 5)$

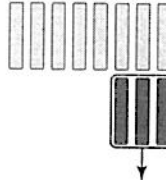
5.4 Subtracting Polynomials, page 234

4. a) $(-2x^2 + 4x - 2) - (-x^2 + 3x - 1) = -x^2 + x - 1$
 b) $(x^2 - 5x - 4) - (x^2 - 4x - 2) = -x - 2$

5. a) $(5r) - (3r) = 2r$



b) $(5r) - (-3r) = 8r$



c) $(-5r) - (3r) = -8r$

d) $(-5r) - (-3r) = -2r$

e) $(3r) - (5r) = -2r$

f) $(-3r) - (5r) = -8r$

g) $(3r) - (-5r) = 8r$

h) $(-3r) - (-5r) = 2r$

6. a) $2x + 1$ b) $2x + 5$
 c) $8x + 1$ d) $8x + 5$
7. a) $s^2 + s + 3$ b) $s^2 - s + 3$
 c) $5s^2 - 3s - 3$ d) $-5s^2 + 3s - 3$
8. a) $5x + 9$ b) $4b^2 - 3b$
 c) $-7x + 2$ d) $2p + 1$
 e) $2x^2 + 4x + 8$ f) $4m^2 - 7m + 10$
 g) $-5x^2 + x + 4$ h) $4r^2 - 7r - 4$
9. a) $(4n + 2500) - (2n + 2100)$
 b) \$6400 more
10. a) Answers may vary. For example:
 Substitute $x = 4$.

$$\begin{aligned} & [2(4)^2 + 5(4) + 10] - [(4)^2 - 3] \\ &= 2(16) + 20 + 10 - (16 - 3) \\ &= 32 + 20 + 10 - 13 \\ &= 49 \\ &= (4)^2 + 8(4) + 10 \\ &= (16) + 32 + 10 \\ &= 58 \end{aligned}$$

$49 \neq 58$, so the answer is incorrect.

- b) Correction:
 $(2x^2 + 5x + 10) - (x^2 - 3)$
 $= 2x^2 + 5x + 10 - x^2 + 3$
 $= 2x^2 - x^2 + 5x + 10 + 3$
 $= x^2 + 5x + 13$
12. a) The student did not change the signs of $+5y$ and -2 inside the second pair of brackets.
 b) Correction:
 $(2y^2 - 3y + 5) - (y^2 + 5y - 2)$
 $= 2y^2 - 3y + 5 - y^2 - 5y + 2$
 $= y^2 - 8y + 7$
13. a) $w + 4$ b) $s + 3$
 c) $4p + 1$
14. c) The sum of the two polynomials is 0.
 The coefficients of the like terms in each polynomial are opposites.
15. a) $3r^2 + 10s^2$ b) $-8m^2 - 3mn - 3n^2$
 c) $12c^2 - 10d^2 - cd$ d) $-e^2 + 15e + 6f + 5f^2$
 e) $-2j^2 - 10j + 5jk - 2k + k^2$
16. a) $-5x^2 + 9x - 11$ or $-11x^2 + x + 3$
 b) $(-5x^2 + 9x - 11) - (-8x^2 + 5x - 4) = 3x^2 + 4x - 7$
 $(-8x^2 + 5x - 4) - (-11x^2 + x + 3) = 3x^2 + 4x - 7$
17. $6x - 8$
18. There are many possibilities.
 For example: $(-4x^2 - 2x) - (-4x + 5) = -4x^2 + 2x - 5$

Unit 5: Mid-Unit Review, page 237

1. a) Variable: m ; number of terms: 2; coefficient: 3;
 constant term: -5 ; degree: 1
 b) Variable: r ; number of terms: 1; coefficient: 4;
 constant term: none; degree: 1
 c) Variable: x ; number of terms: 3; coefficients: 1,
 4; constant term: 1; degree: 2
2. Answers will vary, for example: $3m^2 - 4m - 5$
3. a) $-x^2 + 12$; binomial
 b) $-2x^2 - 4x + 8$; trinomial c) $-4x$; monomial
4. a)

