Harder Expanding Practice #2

Expand and simplify:

1. $(x - 2)(x - 1)$

2. $3x(x - 2) + x(2x + 7)$

3. $7(2x + 3) - 5(x - 2)$

4. $(2 + k)(2 - k)$

5. $2(y + x) - 3(4 + x)$

6. $(5x - 3)(5x + 3)$

7. $5x(2x + y - 5)$

8. $(2x + 3)(x - 2)$

9. $(a + 5b)(a - b)$

10. $(x - 2y)(x + 2y)$

11. $^-2(x - 2) - 3(x + 7)$

12. $\frac{1}{2}(2a - b) + \frac{1}{2}(a - 2b)$

13. $3(2x - 5) - x(x - 3)$

14. $(x + 2)(x - 4)$

15. $3(a - b) - 7(b - a)$

16. $4(2x + 3) - 2(4x + 6)$

17. $(2x - 3)^2 = (2x - 3)(2x - 3)$

18. $(2x - 1)(3x + 4)$

19. $(a - b)(b - 2a)$

20. $x(x + {}^-2) - 5x(7 + x)$

Answers: Harder Expanding Practice #2

Negative terms can also be written as plus the negative, e.g. $3x - 5 = 3x + {}^-5$.

Terms can be in any order, so long as the + and − signs are correct, e.g. ${}^-k^2 + 6 = 6 - k^2$

Expand and simplify:

1. $(x - 2)(x - 1)$ $\qquad = x^2 - 1x - 2x + 2$ $\qquad = x^2 - 3x + 2$

2. $3x(x - 2) + x(2x + 7)$ $\qquad = 3x^2 - 6x + 2x^2 + 7x$ $\qquad = 5x^2 + x$

3. $7(2x + 3) - 5(x - 2)$ $\qquad = 14x + 21 - 5x + 10$ $\qquad = 9x + 31$

4. $(2 + k)(2 - k)$ $\qquad = 4 - 2k + 2k - k^2$ $\qquad = 4 - k^2$

5. $2(y + x) - 3(4 + x)$ $\qquad = 2y + 2x - 12 - 3x$ $\qquad = 2y - x - 12$

6. $(5x - 3)(5x + 3)$ $\qquad = 25x^2 + 15x - 15x - 9$ $\qquad = x^2 - 4$

7. $5x(2x + y - 5)$ $\qquad = 10x^2 + 5xy - 25x$

8. $(2x + 3)(x - 2)$ $\qquad = 2x^2 - 4x + 3x - 6$ $\qquad = 2x^2 - x - 6$

9. $(a + 5b)(a - b)$ $\qquad = a^2 - ab + 5ab - 5b^2$ $\qquad = a^2 + 4ab - 5b^2$

10. $(x - 2y)(x + 2y)$ $\qquad = x^2 + 2xy - 2xy - 4y^2$ $\qquad = x^2 - 4y^2$

11. ${}^-2(x - 2) - 3(x + 7)$ $\qquad = {}^-2x + 4 - 3x - 21$ $\qquad = {}^-5x - 17$

12. $\frac{1}{2}(2a - b) + \frac{1}{2}(a - 2b)$ $\qquad = a - \frac{1}{2}b + \frac{1}{2}a - b$ $\qquad = 1.5a - 1.5b$

13. $3(2x - 5) - x(x - 3)$ $\qquad = 6x - 15 - x^2 + 3x$ $\qquad = {}^-x^2 + 9x - 15$

14. $(x + 2)(x - 4)$ $\qquad = x^2 - 4x + 2x - 8$ $\qquad = x^2 - 2x - 8$

15. $3(a - b) - 7(b - a)$ $\qquad = 3a - 3b - 7b + 7a$ $\qquad = 10a - 10b$

16. $4(2x + 3) - 2(4x + 6)$ $\qquad = 8x + 12 - 8x - 12$ $\qquad = 16x$

17. $(2x - 3)^2 = (2x - 3)(2x - 3)$ $\qquad = 4x^2 - 6x - 6x + 9$ $\qquad = 4x^2 - 12x + 9$

18. $(2x - 1)(3x + 4)$ $\qquad = 6x^2 + 8x - 3x - 4$ $\qquad = 3x^2 + 5x - 4$

19. $(a - b)(b - 2a)$ $\qquad = ab - 2a^2 - b^2 + 2ab$ $\qquad = {}^-2a^2 - b^2 + 3ab$

20. $x(x + {}^-2) - 5x(7 + x)$ $\qquad = x^2 - 2x - 35x - 5x^2$ $\qquad = {}^-4x^2 - 37x$