

Harder Expanding Practice #3

Expand and simplify:

1. $(x - 4)(x - 6)$

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

3. $7(x + 2) - 4(x - 3)$

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

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

6. $(5a - 3b)(5b + 3a)$

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

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

9. $(x - 2y)(x - y)$

10. $(k + m)(k - m)$

11. $4(x - 3) - 2(x + 5)$

12. $\frac{1}{4}(2a + 3b) + \frac{1}{2}(5a + b)$

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

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

15. $2(a - b) + 3(b - a)$

16. $5(2x + 3) - 3(4x - 1)$

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

18. $(x - \frac{1}{2})(2x + 5)$

19. $(\frac{1}{2}x - 4)(\frac{1}{2}x - 2)$

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

Answers: Harder Expanding Practice #3

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. $(x - 4)(x - 6) = x^2 - 6x - 4x + 24 = x^2 - 10x + 24$
2. $x(x - y) + y(2x + 7) = x^2 - xy + 2xy + 7y = x^2 + xy + 7y$
3. $7(x + 2) - 4(x - 3) = 7x + 14 - 4x + 12 = 3x + 26$
4. $(2 + 3x)(2 - 3x) = 4 - 6x + 6x - 9x^2 = 4 - 9x^2$
5. $2(x + z) - 3(x + y) = 2x + 2z - 3x - 3y = 2z - x - 3y$
6. $(5a - 3b)(5b + 3a) = 25ab + 15a^2 - 15b^2 - 9ab = 16ab + 15a^2 - 15b^2$
7. $x(2x + y - 5z) = 2x^2 + xy - 5xz$
8. $(x + y + 3)(x + 2) = x^2 + 2x + xy + 2y + 3x + 6 = x^2 + 5x + xy + 2y + 6$
9. $(x - 2y)(x - y) = x^2 - xy - 2xy - 2y^2 = x^2 - 3xy - 2y^2$
10. $(k + m)(k - m) = k^2 - km + km - m^2 = k^2 - m^2$

11. $4(x - 3) - 2(x + ^{-}5) = 4x - 12 - 2x + 10 = 2x - 2$
12. $\frac{1}{4}(2a + 3b) + \frac{1}{2}(5a + b) = 0.5a + 0.75b + 2.5a + 0.5b = 3a + 1.25b$
13. $3x(2x + 5) - 2x(x + 3) = 6x^2 + 15x - 2x^2 - 6x = 4x^2 + 9x$
14. $(2 - x)(x - 4) = 2x - 8 - x^2 + 4x = ^{-}x^2 + 6x - 8$
15. $2(a - b) + 3(b - a) = 2a - 2b + 3b - 3a = b - a$
16. $5(2x + 3) - 3(4x - 1) = 10x + 15 - 12x + 3 = 18 - 2x$
17. $(x - 3y)^2 = (x - 3y)(x - 3y) = x^2 - 3xy - 3xy + 9y^2 = x^2 - 6xy + 9y^2$
18. $(x - \frac{1}{2})(2x + 5) = 2x^2 + 5x - x - 2.5 = 2x^2 + 4x - 2.5$
19. $(\frac{1}{2}x - 4)(\frac{1}{2}x - 2) = \frac{1}{4}a^2 - x - 2x + 8 = 0.25x^2 - 3x + 8$
20. $x(3 - x) - 5(2 + x) = 3x - x^2 - 10 - 5x = ^{-}x^2 - 2x - 10$