

## Polynomial Addition, Subtraction, and Multiplication Problems — Review

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Multiply out, if needed, and simplify each of the following problems. Write complete and correct steps for all problems. Do not use a calculator. You should do all these problems as the problems are not in any specific order.

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|----------------------------------|--|
| (1) $-2x - 3x$                   | (2) $\frac{1}{3}x - \frac{2}{5}x$      |
| (3) $4x - 3y - 6x + 2y$          | (4) $30.2x + 4.5y - 0.8x + 1.04y$      |
| (5) $7z - 2ab + 4z - 2z$         | (6) $9x - 8x + 2y - 6y$                |
| (7) $9z + 4x - 22z - 11x$        | (8) $2x^2 - xy + 4x^2 - 3y$            |
| (9) $4x + 4x - 8x + 12x$         | (10) $-(-x + y)$                       |
| (11) $3x(x + 2)$                 | (12) $2(x - 1)(x + 2)$                 |
| (13) $3xy - 2x^2y + 4xy^2 - 5xy$ | (14) $2xz - 4xy$                       |
| (15) $7.1ab - 1.9ab + 1.2ab$     | (16) $x(2x + 1)^2$                     |
| (17) $-(2z) + 4z$                | (18) $-(2x) + 3$                       |
| (19) $-(2x) - \frac{4}{5}x$      | (20) $(3 - 2)x$                        |
| (21) $-(2(3x)) + 4x$             | (22) $-(6x) - (4x) - 2x$               |
| (23) $-(4a + 2a)$                | (24) $5x - 2x(x - 3)$                  |
| (25) $-(3y) - (2x)$              | (26) $3.6(-2.5x)$                      |
| (27) $-y + 2x - (-y + x)$        | (28) $-(2xy^2) + 3xy^2$                |
| (29) $(a + x)(a + 1)$            | (30) $3(2x - 3y) - (x - 3y)$           |
| (31) $-(3x) + 4x$                | (32) $-(2(x + 2)) + 3$                 |
| (33) $-(3x) + 2a$                | (34) $2x(x + 2)2$                      |
| (35) $2x^2 - 3(x^2 + 2)$         | (36) $(2x)(3x)$                        |
| (37) $(2 - 2)(x - y)$            | (38) $(3 - 2)x$                        |
| (39) $3 - 2(x)$                  | (40) $5 - 8(x) - 2x$                   |
| (41) $3(-4(ab + 2)) + 2$         | (42) $(x - 3)x - 6$                    |
| (43) $(x + 8)(x + 1)$            | (44) $-(2xy) - 3xy$                    |
| (45) $(4x) - (9x) - (7y)$        | (46) $-12x^2 - 8xy + 2x$               |
| (47) $(2xy - 8x) - (3xy + 4y)$   | (48) $(2x - 3) - 2x$                   |
| (49) $3(x - 2)(x + 4)$           | (50) $2x(3x - 2) - x(x + 4)$           |
| (51) $3 + x(2x - 3)$             | (52) $(5x + 1) - (3x)$                 |
| (53) $(2x - 2)(2x)$              | (54) $2xy(3x - 5y) + x^2y - 3xy^2 - 5$ |
| (55) $4x - 2(4x)$                | (56) $-(3t) + 2t(3t - 2)$              |
| (57) $3x - (2x)(3)$              | (58) $(3 - 2)(x - y)$                  |

- (59)  $(3)(4x)$
- (61)  $9(-3x)$
- (63)  $\left(\frac{6a}{15}\right)\left(\frac{10}{12}b\right)$
- (65)  $(3) - (8) + 5x$
- (67)  $(2a) - (5a)$
- (69)  $3(-2x) - 3(2x)$
- (71)  $-(-2(x) - 1)$
- (73)  $-6xy + 5x - 8xy + 3x$
- (75)  $8 - 3x - 3$
- (77)  $2(x^2) + 2x^2$
- (79)  $x + 1 + (x + 2)$
- (81)  $-(-3 - (x))$
- (83)  $(2 - x) - (x - 2)$
- (85)  $-(-2x) - 3x$
- (87)  $2 - 4(3 + x)$
- (89)  $(x + 4)x + 2$
- (91)  $2x + 3(x - 1)$
- (93)  $x + 1(x + 2)$
- (95)  $(2(3x - 1) - 3)(x - 1)$
- (97)  $(2)(3x) - 3x$
- (99)  $3x^2y - 2xy^2$
- (101)  $5x - 7x$
- (103)  $5 - \sqrt{5} + 9 - \sqrt{5}$
- (105)  $(3x) - (5x)$
- (107)  $(2 + 5)x$
- (109)  $0.2(3.1x - 1.3)$
- (111)  $3^2x - 3x^2 + 2x - 8$
- (113)  $(7x - 2x) - (3x)$
- (115)  $(5x) - (-3x) - (7x)$
- (117)  $(5x) - (-3x) - (7x)$
- (119)  $3x(2x - 1)(x + 2)$
- (60)  $\frac{5}{4}(2x)$
- (62)  $-2(-3(x - 2) - 1)$
- (64)  $7 + (-2x)$
- (66)  $(2)(x - 4)$
- (68)  $9a^2b + 5a - ab$
- (70)  $(7x) - (2y)$
- (72)  $a(-2y) + x$
- (74)  $(3) - (x - 3)$
- (76)  $(9) - 3(x) - (4)$
- (78)  $3x^2 - x(x - 1)$
- (80)  $1(2x) - 12x$
- (82)  $3x - x(3x - 1)$
- (84)  $1 + (3 - x^2)$
- (86)  $-(-0.2x - 2.2x)$
- (88)  $x + 1(x + 4)$
- (90)  $(3 - (2x))x - 3$
- (92)  $\frac{7}{2}x - \frac{2x}{3} + 7x$
- (94)  $2(3x - 1) - 3(x - 1)$
- (96)  $5x - 2(2 - (x + 1))$
- (98)  $(2)(x - 3x)$
- (100)  $-(-x - (-x - 1))$
- (102)  $-4x - 3 + 6x^2 - 5x - 8x^2 + 7$
- (104)  $2x - 6x(x - 2)$
- (106)  $(2(x + 1))^2$
- (108)  $(3x - 2) + 2(-4x - 1) - (-5x + 1)$
- (110)  $2(3x) - 1$
- (112)  $\sqrt{x} - 3x + 7\sqrt{x} - 5x - 3$
- (114)  $3((2x) - 3)$
- (116)  $2(3(5(x + 2)))$
- (118)  $3(\sqrt{5} - 2\sqrt{5}) + 7\sqrt{5}$
- (120)  $4(x + 2)^2 - (2x + 1)^2$

Answers: (1)  $-5x$  (2)  $\frac{-x}{15}$  (3)  $-y - 2x$  (4)  $5.54y - 0.2x$  (5)  $9z - 2ab$  (6)  $-4y + x$   
 (7)  $-13z - 7x$  (8)  $-xy - 3y + 6x^2$  (9)  $12x$  (10)  $-y + x$  (11)  $3x^2 + 6x$  (12)  $2x^2 + 2x - 4$   
 (13)  $4xy^2 - 2x^2y - 2xy$  (14)  $2xz - 4xy$  (15)  $6.4ab$  (16)  $4x^3 + 4x^2 + x$  (17)  $2z$   
 (18)  $-2x + 3$  (19)  $\frac{-14x}{5}$  (20)  $x$  (21)  $-2x$  (22)  $-12x$  (23)  $-6a$  (24)  $-2x^2 + 11x$   
 (25)  $-3y - 2x$  (26)  $-9x$  (27)  $x$  (28)  $xy^2$  (29)  $ax + x + a^2 + a$  (30)  $-6y + 5x$   
 (31)  $x$  (32)  $-2x - 1$  (33)  $-3x + 2a$  (34)  $4x^2 + 8x$  (35)  $-x^2 - 6$  (36)  $6x^2$   
 (37)  $0$  (38)  $x$  (39)  $-2x + 3$  (40)  $-10x + 5$  (41)  $-12ab - 18$  (42)  $x^2 - 3x - 6$   
 (43)  $x^2 + 9x + 8$  (44)  $-5xy$  (45)  $-7y - 5x$  (46)  $-8xy - 12x^2 + 2x$  (47)  $-xy - 4y - 8x$   
 (48)  $-3$  (49)  $3x^2 + 6x - 24$  (50)  $5x^2 - 8x$  (51)  $2x^2 - 3x + 3$  (52)  $2x + 1$  (53)  $4x^2 - 4x$   
 (54)  $-13xy^2 + 7x^2y - 5$  (55)  $-4x$  (56)  $6t^2 - 7t$  (57)  $-3x$  (58)  $-y + x$  (59)  $12x$   
 (60)  $\frac{5x}{2}$  (61)  $-27x$  (62)  $6x - 10$  (63)  $\frac{ab}{3}$  (64)  $-2x + 7$  (65)  $5x - 5$  (66)  $2x - 8$   
 (67)  $-3a$  (68)  $9a^2b - ab + 5a$  (69)  $-12x$  (70)  $-2y + 7x$  (71)  $2x - 1$  (72)  $-2ay + ax$   
 (73)  $-14xy + 8x$  (74)  $-x + 6$  (75)  $-3x + 5$  (76)  $-3x + 5$  (77)  $4x^2$  (78)  $2x^2 + x$   
 (79)  $2x + 3$  (80)  $-10x$  (81)  $x + 3$  (82)  $-3x^2 + 4x$  (83)  $-2x + 4$  (84)  $-x^2 + 4$   
 (85)  $-x$  (86)  $2.4x$  (87)  $-4x - 10$  (88)  $2x + 4$  (89)  $x^2 + 4x + 2$  (90)  $-2x^2 + 3x - 3$   
 (91)  $5x - 3$  (92)  $\frac{59x}{6}$  (93)  $2x + 2$  (94)  $3x + 1$  (95)  $6x^2 - 11x + 5$  (96)  $7x - 2$   
 (97)  $3x$  (98)  $-4x$  (99)  $-2xy^2 + 3x^2y$  (100)  $-1$  (101)  $-2x$  (102)  $-2x^2 - 9x + 4$   
 (103)  $-2\sqrt{5} + 14$  (104)  $-6x^2 + 14x$  (105)  $-2x$  (106)  $4x^2 + 8x + 4$  (107)  $7x$  (108)  $-5$   
 (109)  $0.62x - 0.26$  (110)  $6x - 1$  (111)  $-3x^2 + 11x - 8$  (112)  $-8x + 8\sqrt{x} - 3$  (113)  $2x$   
 (114)  $6x - 9$  (115)  $x$  (116)  $30x + 60$  (117)  $x$  (118)  $4\sqrt{5}$  (119)  $6x^3 + 9x^2 - 6x$   
 (120)  $12x + 15$