

Name: _____ Period: _____ Date: _____

Factoring $ax^2 + bx + c$ Assignment

Factor the following polynomials in $ax^2 + bx + c$ form.

1. $4x^2 + 34x + 72$

2. $3y^2 - 2y - 120$

3. $2a^2 - 3a - 2$

4. $2a^2 + 16a - 360$

5. $10x^2 + 1 = 45x + 150$

6. $3y^2 - 7y - 150$

7. $4b^2 + 12b + 9$

8. $5d^2 + 2d - 39$

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9. $2y^2 + y - 105$

10. $3a^2 + a - 28$

11. $6x^2 + 45x + 54$

12. $4y^2 - 39y + 90$

13. $3a^2 + 6a - 45$

14. $2a^2 + 18a + 40$

15. $4x^2 + 60x + 225$

16. $5y^2 - 4y - 96$

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Factoring $ax^2 + bx + c$ Assignment

17. $9b^2 + 54b + 81$

18. $3d^2 - 2d - 120$

19. $4y^2 + 24y + 36$

20. $2a^2 - 31a + 120$

Factoring $ax^2 + bx + c$ Assignment**Answer:**Factor the following polynomials in $ax^2 + bx + c$ form.

1. $4x^2 + 34x + 72$

Answer:

$4x^2 = (2x)(2x)$

$72 = (8)(9)$

$34x = 16x + 18x$

$(2x + 8)(2x + 9)$

3. $2a^2 - 3a - 2$

Answer:

$2a^2 = (a)(a)$

$-2 = (-2)(1)$

$-3a = -4a + a$

$(2a + 1)(a - 2)$

5. $10x^2 + 1 = 45x + 150$

Answer:

$10x^2 = (2x)(5x)$

$150 = (10)(5)$

$45x = 20x + 25x$

$(2x + 5)(5x + 10)$

7. $4b^2 + 12b + 9$

Answer:

$4b^2 = (2b)(2b)$

$9 = (3)(3)$

$12b = 6b + 6b$

$(2b + 3)(2b + 3)$

9. $2y^2 + y - 105$

Answer:

$2y^2 = (2y)(y)$

$-105 = (15)(-7)$

$y = 15y - 14y$

$(2y + 15)(y - 7)$

2. $3y^2 - 2y - 120$

Answer:

$3y^2 = (3y)(y)$

$-120 = (-20)(6)$

$-2y = -20y + 18y$

$(3y - 20)(y + 6)$

4. $2a^2 + 16a - 360$

Answer:

$2a^2 = (2a)(a)$

$-360 = (36)(-10)$

$16a = 36a - 20a$

$(2a + 36)(a - 10)$

6. $3y^2 - 7y - 150$

Answer:

$3y^2 = (3y)(y)$

$-150 = (-25)(6)$

$-7y = -25y + 18y$

$(3y - 25)(y + 6)$

8. $5d^2 + 2d - 39$

Answer:

$5d^2 = (5d)(d)$

$-39 = (-13)(3)$

$2d = -13d + 15d$

$(5d - 13)(d + 3)$

10. $3a^2 + a - 28$

Answer:

$3a^2 = (a)(3a)$

$-28 = (-7)(4)$

$a = 3a - 2a$

$(a + 1)(3a - 2)$

Factoring $ax^2 + bx + c$ Assignment

11. $6x^2 + 45x + 54$

Answer:

$6x^2 = (6x)(x)$

$54 = (9)(6)$

$45x = 9x + 36x$

$(6x + 9)(x + 6)$

13. $3a^2 + 6a - 45$

Answer:

$3a^2 = (3a)(a)$

$-45 = (-9)(5)$

$6a = -9a + 15a$

$(3a - 9)(a + 5)$

15. $4x^2 + 60x + 225$

Answer:

$4x^2 = (2x)(2x)$

$225 = (15)(15)$

$60x = 30x + 30x$

$(2x + 15)(2x + 15)$

17. $9b^2 + 54b + 81$

Answer:

$9b^2 = (3b)(3b)$

$81 = (9)(9)$

$54b = 27b + 27b$

$(3b + 9)(3b + 9)$

19. $4y^2 + 24y + 36$

Answer:

$4y^2 = (2y)(2y)$

$36 = (6)(6)$

$24y = 12y + 12y$

$(2y + 6)(2y + 6)$

12. $4y^2 - 39y + 90$

Answer:

$4y^2 = (4y)(y)$

$90 = (-15)(-6)$

$-39y = -15y - 6y$

$(4y - 15)(y - 6)$

14. $2a^2 + 18a + 40$

Answer:

$2a^2 = (2a)(a)$

$40 = (8)(5)$

$18a = 8a + 10a$

$(2a + 8)(a + 5)$

16. $5y^2 - 4y - 96$

Answer:

$5y^2 = (5y)(y)$

$-96 = (-24)(4)$

$-4y = -24y + 20y$

$(5y - 24)(y + 4)$

18. $3d^2 - 2d - 120$

Answer:

$3d^2 = (3d)(d)$

$-120 = (-20)(6)$

$-2d = -20d + 18d$

$(3d - 20)(d + 6)$

20. $2a^2 - 31a + 120$

Answer:

$2a^2 = (2a)(a)$

$120 = (-15)(-8)$

$-31a = -15a - 16a$

$(2a - 15)(a - 8)$