

(7F) Factor $x^2 + bx + c$, c is negative

① $y^2 + 4y - 5$ ← 5 · 1

$(y + 5)(y - 1)$
5y
-1y

② $p^2 + p - 12$ ← 4 · 3

$(p + 4)(p - 3)$
4p
-3p

③ $x^2 - 14x - 32$

$(x - 16)(x + 2)$
-16x
2x

④ $x^2 + 8x - 15$ ← 3 · 5
1 · 15

~~$(x - 3)(x + 5)$~~

prime

⑤ $p^2 + 4pg - 45g^2$ ← 9 · 5

$(p + 9g)(p - 5g)$
9pg
-5pg

⑥ $1 + 9c - 36c^2$ ← 9 · 4
3 · 12

$(1 + 12c)(1 - 3c)$
12c
-3c

Set H

WS 7F (# 2-18) × 2

(# 21-36) × 3

Mixed Rev. (# 1-12) all

Factoring Pattern for $x^2 + bx + c$, c negative

Objective: To factor quadratic trinomials whose quadratic coefficient is 1 and whose constant term is negative.

Factor. Check by multiplying the factors. If the polynomial is not factorable, write *prime*.

- (# 2-18) x 2
- | | |
|----------------------|----------------------|
| 1. $a^2 - 2a - 3$ | 2. $x^2 + x - 6$ |
| 3. $y^2 + 3y - 4$ | 4. $b^2 - 3b - 10$ |
| 5. $c^2 - 9c - 8$ | 6. $r^2 + 12r - 28$ |
| 7. $x^2 - 7x - 18$ | 8. $y^2 + 4y - 21$ |
| 9. $a^2 + 5a - 14$ | 10. $k^2 - 6k - 40$ |
| 11. $z^2 + 6z - 27$ | 12. $r^2 - 2r - 35$ |
| 13. $p^2 - 4p - 12$ | 14. $a^2 - 3a - 40$ |
| 15. $y^2 - 8y - 20$ | 16. $z^2 - z - 56$ |
| 17. $y^2 - 14y - 72$ | 18. $t^2 + 16t - 30$ |

Factor. Check by multiplying the factors. If the polynomial is not factorable, write *prime*.

- (# 21-36) x 3
- | | | |
|-------------------------|-------------------------|--------------------------|
| 19. $a^2 - ab - 20b^2$ | 20. $y^2 - yz - 12z^2$ | 21. $u^2 - 3uv - 18v^2$ |
| 22. $a^2 - 5ab - 24b^2$ | 23. $x^2 - 7xy - 30y^2$ | 24. $h^2 - 2hk - 24k^2$ |
| 25. $x^2 + 5xy - 50y^2$ | 26. $c^2 - 2cd - 35d^2$ | 27. $x^2 - 11xy - 42y^2$ |

Factor. Check by multiplying the factors. If the polynomial is not factorable, write *prime*.

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|----------------------|-----------------------|-----------------------|
| 28. $1 + 2c - 24c^2$ | 29. $1 + 9c - 36c^2$ | 30. $1 + 5x - 24x^2$ |
| 31. $1 + 5x - 36x^2$ | 32. $1 - 14y - 72y^2$ | 33. $1 - 12x - 45x^2$ |
| 34. $1 - 4x - 21x^2$ | 35. $1 - 7x - 30x^2$ | 36. $1 + 7x - 44x^2$ |

Mixed Review Exercises

Simplify.

- (# 1-12) all
- | | | |
|------------------------------|-----------------------------|--------------------------|
| 1. $(8x^2y)(4xy^2)(3y^2)$ | 2. $(3x - 2)(2x + 3)$ | 3. $-5x(2x^2 - x + 3)$ |
| 4. $(2x - 3)^2$ | 5. $(5x^4y^2)^3$ | 6. $4y(2y^2 + 5y + 3)$ |
| 7. $\frac{4(xy)^4}{8(xy)^2}$ | 8. $\frac{-3ab}{-18a^2b^3}$ | 9. $\frac{(-n)^4}{-n^8}$ |
| 10. $(m + 2n)^2$ | 11. $(a - 4)(3a + 2)$ | 12. $(2y + 5)^2$ |

Factor.

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|--------------------------|----------------------|------------------------|
| 13. $10m - 14n + 2$ | 14. $81k^2 - 25$ | 15. $a^2 + 8a + 16$ |
| 16. $a^2 - 11ab + 24b^2$ | 17. $18x^2 + 12x$ | 18. $49 - n^2$ |
| 19. $u^2 - 18u + 81$ | 20. $27 + 12y + y^2$ | 21. $6a^3b^2 - 18a^2b$ |
| | 23. $m^2 + 3m + 2$ | 24. $c^2 - 9c - 22$ |