

A. Factor the following.

1. $2x + 2y$

$2(x+y)$

2. $ab + ac$

$a(b+c)$

3. $3x + 4x$

$x(3+4)$

4. $x^2y + 3y^2$

$y(x^2 + 3y)$

5. $x^2y + x^2z$

$x^2(y+z)$

6. $3xy + 4xyz$

$xy(3 + 4z)$

7. $3x + 3y + 3z$

$3(x+y+z)$

8. $15y^2 + 20a + 30b$

$5(3y^2 + 4a + 6b)$

9. $4x + 6a$

$2(2x + 3a)$

10. $10y - 5$

$5(2y - 1)$

11. $15ax - 3a$

$3a(5x - 1)$

12. $a^3x^2 - a^2x^2 - qx$

$x(a^3x - a^2x - q)$

13. $14y^4 - 35y^3 - 42y^2$

$7y^2(2y^2 - 5y - 6)$

19. $2x^3 - 10x^2 + 12x$

$2x(x^2 - 5x + 6)$

20. $4y^3 + 8y^2 - 4y$

$4y(y^2 + 2y - 1)$

21. $8x^2 - 24x + 96$

$8(x^2 - 3x + 12)$

22. $-63y^5 + 15y^3 - 27y^2 + 45y$

$3y(-21y^4 + 5y^2 - 9y + 15)$

23. $-10ey^5 - 30e^2y^2 + 45e^3y - 15e$

24. $36a^7x^4 - 42a^9x^2$

25. $4y^3 - 2ay^2$

26. $-3y^4 - 6y^3 + 2iy^2$

27. $4x^2 - 2x + 12$

28. $3x^3 - 9x^2 + 6x$

29. $30y^4 - 18y^3 - 6y^2$

30. $7x - 28$

31. $42a^2b^2 + 7ab + 6b$

- $xy(3 + 4z)$
 7. $3x + 3y + 3z$
 $3(x + y + z)$
 8. $15y^2 + 20a + 30b$
 $5(3y^2 + 4a + 6b)$
 9. $4x + 6a$
 $2(2x + 3a)$
 10. $10y - 5$
 $5(2y - 1)$
 11. $15ax - 3a$
 $3a(5x - 1)$
 12. $a^3x^2 - a^2x^2 - qx$
 $x(a^3x - a^2x - q)$
 13. $14y^4 - 35y^3 - 42y^2$
 $7y^2(2y^2 - 5y - 6)$
 14. $12y^4 + 18y^6$
 $6y^4(2 + 3y^2)$
 15. $-6x^8 + 9$
 $3(-2x^8 + 3)$
 16. $2ax - 2bx - 2cx$
 $2x(a - b - c)$
 17. $-9x^3 + 33x^2 - 6x + 12$
 $3(-3x^3 + 11x^2 - 2x + 4)$
 18. $-100x^4 - 1000x^3 - 10000x$
 $-100x(x^3 + 10x^2 + 100)$
 25. $4y^3 - 2ay^2$
 26. $-3y^4 - 6y^3 + 2iy^2$
 27. $4x^2 - 2x + 12$
 28. $3x^3 - 9x^2 + 6x$
 29. $30y^4 - 18y^3 - 6y^2$
 30. $7x - 28$
 31. $42a^2b^2 + 7ab + 6b$
 32. $3x^2 + 12x + 9$
 33. $100 - 1000x$
 34. $44a - 33b + 22c$
 35. $4ab^2 - ab^2c$

Warm Up Questions

1. $200x^5y^3z^2 - 300y^2z^3 + 75x^4y^2$

2. $14a^3b^6c + 56b^5c^3 - 70a^2b^7c^2$

3. $16m^8n^3p^2 - 32m^5n^2p$

4. $-5a^5b^7c^3 - 3a^2b^4c^5 - 2a^6c^2$

1. $200x^5y^3z^2 - 300y^2z^3 + 75x^4y^2$

$$25y^2(8x^5y^1z^2 - 12z^3 + 3x^4)$$

$$2. \quad \underline{14a^3b^6c^1} + \underline{56b^5c^3} - \underline{70a^2b^7c^2}$$
$$= 14b^5c^1 (1a^3b^1 + 4c^2 - 5a^2b^2c^1)$$

$$3. \quad \underline{16m^8n^3p^2} - \underline{32m^5n^2p}$$
$$16m^5n^2p (1m^3n^1p^1 - 2)$$

$$4. \quad \underline{\underline{-5a^5b^7c^3}} \quad \underline{\underline{-3a^2b^4c^5}} \quad - \quad \underline{\underline{2a^6c^2}}$$

$$-1a^2c^2 (5a^3b^7c^1 + 3b^4c^3 + 2a^4)$$