

Dividing Polynomials

Common Factoring

POLYNOMIO

Divide.

1. $\frac{12xy}{4xy}$
2. $\frac{24ab}{-4ab}$
3. $\frac{-12mn}{3m}$
4. $\frac{-30xy}{-5xy}$
5. $\frac{11ab}{ab}$
6. $\frac{5xy}{5x}$
7. $\frac{24x^2y}{6xy}$
8. $\frac{15ab^3}{-5ab}$
9. $\frac{36x^3y^2}{-6x^2y^2}$

State the missing factor.

1. $12x + 18y = (\square)(2x + 3y)$
2. $3x^2 - 5x = (\square)(3x - 5)$
3. $4ab + 3ac = (\square)(4b + 3c)$
4. $5x^2 + 10x = (\square)(x + 2)$
5. $8abc - 12ab = (\square)(2c - 3)$

Copy and complete.

6. $3y^2 + 18y = 3y(y + \square)$
7. $14a - 12b = 2(\square - 6b)$
8. $4a^3 - 8a^2 = 4a^2(\square - 2)$
9. $10x^3 - 5x^2 + 15x = 5x(2x^2 - \square + \square)$

Copy and complete.

10. $33ab - 22b = 11b(\square - \square)$
11. $4a^3 - 10a^2 + 6a = 2a(\square - \square + \square)$
12. $27a^2b^2 - 18ab + 9b = 9b(\square - \square + \square)$
13. $6x^2y - 4xy^2 = 2xy(\square - \square)$
14. $9a^3b - 12ab^4 = 3ab(\square - \square)$

Factor each binomial.

15. $10x + 15$
16. $28y - 14$
17. $2mn - n$
18. $5x^2 + 10x$
19. $8x^2 + 4x^3$
20. $9a^3b^2 - 6a^2b$
21. $4x^2y^2 - 6xy^2z^2$
22. $14a^2b^4 - 21b^2c^2$
23. $6x^2y^3z + 12xy^2z$
24. $15a^2b^5 - 9b^4c^5$

Problems and Applications

Factor each trinomial.

25. $9a - 6b + 3$
26. $4a - 8b + 16$
27. $12x^3 - 6x^2 + 24x$
28. $10x^3 - 5x^2 + 15x$
29. $24x^4y - 18x^3y + 12x^2y^2$
30. $8a^2b + 16ab - 24a$
31. $25m^3n - 15m^2n^2 + 5mn^3$

		FREE SPACE		

More Review
 Factor:
 ① $2a^2 - 5a$
 ② $6b^3 - 9b^2 + 15b$
 ③ $-12x^2y + 8xy^2 - 10xy$

The following polynomials are answers to the questions below. Randomly put the letters in the large portion of each box above.

- | | | | |
|-----------------------------|-----------------------------|------------------------|--------------------|
| A $-3m + 2n$ | G $\frac{7n^2}{m^3}$ | M $3 - 2y + y^2$ | S $2a^2$ |
| B $-12m^3n^2p^3$ | H $-11a + 3$ | N $-8n^2 + 26n - 15$ | T $x^2 - 25$ |
| C $-12a^4 + 8a^3$ | I $2x^3 - 10x^2 + 17x - 15$ | O $-3m^2 - 14m + 30$ | U $-3b^2$ |
| D $-4a^2b^4 + 3ab^3 - 2b^2$ | J $-2a^4 + 4a^2 - 9a$ | P $7a^3b^2 - 21a^2b^3$ | V $1 + 3m - 2m^2$ |
| E $6x + 2$ | K $-2n + 1$ | Q $4ab + 6a^2b - 10a$ | W $4a^2 + 4a + 31$ |
| F $x^2 + 8x + 16$ | L $7x^2 - 5x - 2$ | R $3x^3y - 3x^2y^2$ | X $7x^2 + 5y^2$ |

Now work out full solutions and in the bottom corner of each box, match the question number with the letter answer from above.

1. $(4m^2n^2p)(-3mp^2)$
2. $-4a^2(3a^2 - 2a)$
3. $\frac{-18a^2b^5}{6a^2b^3}$
4. $3m - (-5n) + (-3n) - (+6m)$
5. $\frac{-5 - 15m + 10m^2}{-5}$
6. $3x^2(xy - y^2)$
7. $(2 - 3n) - (1 - n)$
8. $\frac{-28m^2n^4}{-4m^5n^2}$
9. $10(3 - 2m^2) - 5(4m - 2m^2) + m(7m + 6)$
10. $3a^2(1 - a) - (a^2 - 3a^3)$
11. $7ab(a^2b - 3ab^2)$
12. $\frac{-12y^3 + 8y^4 - 4y^5}{-4y^3}$
13. $(3x - 2) - (x - 1) + (4x + 3)$
14. $(7x + 2)(x - 1)$
15. $2a(b - 5) + 5b(a^2 + 2a) - ab(8 - a)$
16. $(5x^2 - 3y^2) + 2(x^2 + 4y^2)$
17. $(4n - 3)(5 - 2n)$
18. $(x - 3)(2x^2 - 4x + 5)$
19. $(x + 4)^2$
20. $4a - 1 + 5(-3a + 2) - 6$
21. $7 - 8(a^2 + 2a - 3) + 4a(3a + 5)$
22. $\frac{3a^2(2a - 6) - a^3(4a^2 - 2)}{2a}$
23. $(x - 5)(x + 5)$
24. $\frac{24a^4b^3 - 18a^3b^4 + 12a^2b^5}{-6a^2b}$

Divide.

10. $\frac{12xy - 15y^2 + 24y}{3y}$
11. $\frac{5x^3 + 10x^2 - 15x}{5x}$
12. $\frac{7y^4 + 7y^3 - 21y}{-7y}$
13. $\frac{4m^3 + 8m^2 - 12m}{4m}$
14. $\frac{9x^3 - 24x^2 - 15x}{-3x}$
15. $\frac{6j^5 + 12j^4 + 18j^3}{-6j}$

Divide.

16. $\frac{10x^4 + 5x^3 - 15x^2}{-5x^2}$
17. $\frac{-21m^2 + 14m^3 - 21m^4}{-7m^2}$
18. $\frac{10p^2q^2 - 15pq^3 + 25p^3q^4}{-5pq^2}$
19. $\frac{-12a^3b^4 + 9a^2b^3 + 24a^4b^4}{3a^2b^3}$

Divide.

20. $\frac{-20x^3yz + 30x^2y^2z - 40xy^3z}{-10xyz}$
21. $\frac{8a^3b^2c^3 - 12a^2b^3c^2 + 16a^4b^3c}{4a^3b^3}$
22. $\frac{-12x^4y^6 - 16x^5y^5 - 24x^6y^4}{-4x^4y^4}$
23. $\frac{30m^3n^5 - 36m^4n^4 - 30m^5n^3}{6m^3n^3}$
24. $\frac{25a^3b^3c^5 - 40a^4b^3c^4 + 35a^6b^4c^3}{-5a^2b^3c^2}$