

Factorising Algebraic Expressions

1. Copy and complete.

a. $3a = 3 \times \underline{\hspace{2cm}}$

b. $8y = 2 \times \underline{\hspace{2cm}}$

c. $9x = 3x \times \underline{\hspace{2cm}}$

d. $27m = 3m \times \underline{\hspace{2cm}}$

e. $a^2 = a \times \underline{\hspace{2cm}}$

f. $4a^2 = 4 \times \underline{\hspace{2cm}}$

g. $12y^2 = 3 \times \underline{\hspace{2cm}}$

h. $24p^2 = p \times \underline{\hspace{2cm}}$

i. $24p^2 = 24 \times \underline{\hspace{2cm}}$

j. $24p^2 = 2p \times \underline{\hspace{2cm}}$

k. $24p^2 = 8p \times \underline{\hspace{2cm}}$

l. $24p^2 = p \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$

2. Copy and complete.

a. $16x^3 = 16 \times \underline{\hspace{2cm}}$

b. $8y^3 = 2 \times \underline{\hspace{2cm}}$

c. $9x^3 = 3x \times \underline{\hspace{2cm}}$

d. $6m^3 = 3m \times \underline{\hspace{2cm}}$

e. $12b^3 = 3b^2 \times \underline{\hspace{2cm}}$

f. $15k^4 = 3k \times \underline{\hspace{2cm}}$

g. $15k^4 = 3k^2 \times \underline{\hspace{2cm}}$

h. $15k^4 = 3k^3 \times \underline{\hspace{2cm}}$

i. $15k^4 = 3k^4 \times \underline{\hspace{2cm}}$

j. $18p^5 = 18p^3 \times \underline{\hspace{2cm}}$

k. $18p^5 = 18p \times \underline{\hspace{2cm}}$

l. $18p^5 = 6p^2 \times \underline{\hspace{2cm}}$

3. List all of the factors of 12.

4. List all of the factors of a^3

5. List six factors of $12a^3$.

6. List **all** of the factors of $12a^3$.

7. List the **common factors** of:

a. $6y$ and $12y$

b. $2a^2$ and $4a$

c. $6a^3$ and a^5

d. $6x$ and $6x^2$

e. c^5 and c^4

f. $12y^3$ and $15y^4$

8. For each pair of factors in Question 5, what is the **highest common factor**?

9. Find the **highest common factor** of:

a. $9a$ and $27a$

b. $2n^2$ and $6n^2$

c. $2a^3$ and a^7

d. $5a^2$ and $7b^3$

e. a^{45} and a^{46}

f. $48v^3$ and $32v^4$

Challenge!

10. The expression $3a$ is a factor of another expression. What might that expression be?

11. The expression $2y$ is a common factor of two expressions. What might those expressions be?

12. The expression $2y$ is the highest common factor of two expressions. What might those expressions be?

Super Challenge!

13. List all of the factors of the expression: $5(x-3)(x+7)$

14. What is the highest common factor of $5(x-3)(x+7)$ and $15(x-3)(x-1)$?

15. The expression $3(2x+1)$ is the highest common factor of two expressions. What might those expressions be?