

SUPER 12s



SUPER 12s CAN BE USED AS AN INDIVIDUALISED MASTERY LEARNING PROGRAM.

2 ALGEBRA
2.5 ALGEBRAIC FRACTIONS
2.5 LEVEL 4

NAME: _____

Skill description: Simplifying algebraic fractions that contain multiple variables raised to powers.

Essential Revision

1. Write as an improper fraction. 2. Write using fractions.

$$1\frac{7}{9}$$

$$6gh \div (j + 5)$$

3. Simplify. 4. Simplify.

$$\frac{15n}{10np}$$

$$\frac{x^2}{x^4}$$

5. Write as a mixed number. 6. Write using fractions.

$$\frac{14}{3}$$

$$2a - b \div y$$

7. Simplify.

$$\frac{8xy}{40xyz}$$

8. Simplify.

$$\frac{x^2}{x}$$

9. Simplify.

$$\frac{4}{8}$$

10. Write using fractions.

$$3x \div y$$

11. Simplify.

$$\frac{21ad}{35dc}$$

12. Simplify.

$$\frac{b^3}{b^5}$$

Solutions can be found at the end of the booklet.

score
12

STRATEGIES TO SOLVE THE PROBLEMS

Index laws

$$\frac{a^m}{a^n} = a^{m-n}$$

$$a^{-m} = \frac{1}{a^m}$$

Example 1

Simplify the following algebraic fraction leaving your answer with positive indices.

$$\frac{x^3y^7}{xy^2}$$

Step 1

Using the index laws, we can simplify.

$$\frac{x^3y^7}{xy^2}$$



$$x^{3-1}y^{7-2}$$



$$x^2y^5$$

Example 2

Simplify the following algebraic fraction leaving your answer with positive indices.

$$\frac{x^2 y^6}{x^5 y^5}$$

Step 1

Using the index laws, we can simplify.

$$\frac{x^2 y^6}{x^5 y^5}$$



$$x^{2-5} y^{6-5}$$



$$x^{-3} y^1$$



$$\frac{y}{x^3}$$



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TO WATCH A VIDEO OF
THESE EXAMPLES.



QUESTIONS

Simplify, leaving your answer with positive indices.

1.

$$\frac{x^5 y^6}{x^7 y^2}$$

2.

$$\frac{x^2 y}{x y^3}$$

3.

$$\frac{a^4 b}{a^2 b^5}$$

4.

$$\frac{f g^5}{f^3 g}$$

5.

$$\frac{m^4 n^2}{m^2 n^7}$$

6.

$$\frac{x^2 y^4}{x y^3 z^2}$$

7.

$$\frac{c^7 d^2 e^2}{d^6 e^8}$$

8.

$$\frac{w^9 x^4 y}{w^4 x y^2}$$

9.

$$\frac{x^2 z^{11}}{y^5 z^4}$$

10.

$$\frac{x^8 y^2}{x^2 y^9 z^2}$$

11.

$$\frac{a^3 c^3}{b^7 c^6}$$

12.

$$\frac{f^4 g^9 h}{f^2 g^7 h^4}$$



SOLUTIONS CAN BE FOUND AT
THE END OF THE BOOKLET.

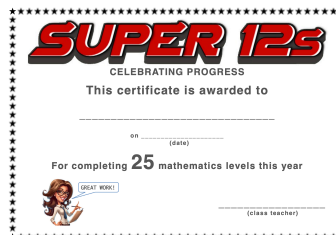
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12

MASTERY TEST

Teacher's signature

I'VE COMPLETED

LEVELS THIS YEAR



Solutions to Essential Revision

1. $\frac{16}{9}$

3. $\frac{3}{2p}$

5. $4\frac{2}{3}$

7. $\frac{1}{5z}$

9. $\frac{1}{2}$

11. $\frac{3a}{5c}$

2. $\frac{6gh}{j+5}$

4. $\frac{1}{x^2}$

6. $2a - \frac{b}{y}$

8. x

10. $\frac{3x}{y}$

12. $\frac{1}{b^2}$

Solutions to Questions

1. $\frac{y^4}{x^2}$

3. $\frac{a^2}{b^4}$

5. $\frac{m^2}{n^5}$

7. $\frac{c^7}{d^4e^6}$

9. $\frac{x^2z^7}{y^5}$

11. $\frac{a^3}{b^7c^3}$

2. $\frac{x}{y^2}$

4. $\frac{g^4}{f^2}$

6. $\frac{xy}{z^2}$

8. $\frac{w^5x^3}{y}$

10. $\frac{x^6}{y^7z^2}$

12. $\frac{f^2g^2}{h^3}$