

Maths

Simplify simple surds

Miss Parnham



Simplify simple surds

1. Write each number in the form $a \times b$ where a is a square number greater than 1

- a) 8 b) 54 c) 75

2. Write each number in the form $a \times b$ where b is the greatest possible square factor.

- a) 48 b) 72 c) 150

3. Which step will help to simplify $\sqrt{24}$?

$$\sqrt{12 \times 2}$$

$$\sqrt{8 \times 3}$$

$$\sqrt{1 \times 24}$$

$$\sqrt{4 \times 6}$$

4. Write $\sqrt{96}$ in the form $\sqrt{a \times b}$ where a and b are integers.

How many different solutions can you find?



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5. Simplify the surds.

a) $\sqrt{8}$ b) $\sqrt{18}$ c) $\sqrt{20}$ d) $\sqrt{32}$

e) $\sqrt{50}$ f) $\sqrt{99}$ g) $\sqrt{125}$ h) $\sqrt{200}$

6. Simplify the fractions.

a) $\frac{\sqrt{12}}{2}$ b) $\frac{\sqrt{45}}{\sqrt{80}}$ c) $\frac{\sqrt{99}}{6}$

7. Simplify the ratios.

a) $\sqrt{20} : \sqrt{5}$

b) $\sqrt{98} : \sqrt{50}$

c) $\sqrt{48} : \sqrt{80}$

d) $\sqrt{180} : \sqrt{125}$



Answers



Simplify simple surds

1. Write each number in the form $a \times b$ where a is a square number greater than 1

- a) 8 b) 54 c) 75
 2×4 6×9 3×25

2. Write each number in the form $a \times b$ where b is the greatest possible square factor.

- a) 48 b) 72 c) 150
 3×16 2×36 6×25

3. Which step will help to simplify $\sqrt{24}$?

$\sqrt{12 \times 2}$	$\sqrt{8 \times 3}$
$\sqrt{1 \times 24}$	$\sqrt{4 \times 6}$

4. Write $\sqrt{96}$ in the form $\sqrt{a \times b}$ where a and b are integers.

$\sqrt{1 \times 96}$	$\sqrt{2 \times 48}$	$\sqrt{3 \times 32}$
$\sqrt{4 \times 24}$	$\sqrt{6 \times 16}$	$\sqrt{8 \times 12}$



Simplify simple surds

5. Simplify the surds.

a) $\sqrt{8}$ $2\sqrt{2}$	b) $\sqrt{18}$ $3\sqrt{2}$	c) $\sqrt{20}$ $2\sqrt{5}$	d) $\sqrt{32}$ $4\sqrt{2}$
e) $\sqrt{50}$ $5\sqrt{2}$	f) $\sqrt{99}$ $3\sqrt{11}$	g) $\sqrt{125}$ $5\sqrt{5}$	h) $\sqrt{200}$ $10\sqrt{2}$

6. Simplify the fractions.

a) $\frac{\sqrt{12}}{2}$	b) $\frac{\sqrt{45}}{\sqrt{80}}$	c) $\frac{\sqrt{99}}{6}$
$\sqrt{3}$	$\frac{3}{4}$	$\frac{\sqrt{11}}{2}$

7. Simplify the ratios.

a) $\sqrt{20} : \sqrt{5}$	2:1
b) $\sqrt{98} : \sqrt{50}$	7:5
c) $\sqrt{48} : \sqrt{80}$	$\sqrt{3} : \sqrt{5}$
d) $\sqrt{180} : \sqrt{125}$	6:5

