

# Surds worksheet:

1)

Complete these addition squares. Simplify your answers.

<b>+</b>	$3\sqrt{5}$	$-2\sqrt{5}$
$\sqrt{20}$	<input type="text"/>	<input type="text"/>
$\sqrt{45}$	<input type="text"/>	<input type="text"/>

<b>+</b>	$\sqrt{54}$	$3\sqrt{6}$
$\sqrt{24}$	<input type="text"/>	<input type="text"/>
$-\sqrt{6}$	<input type="text"/>	<input type="text"/>

Complete these addition squares. Simplify your answers.

<b>+</b>	$3\sqrt{5}$	$-2\sqrt{5}$
$\sqrt{20}$	$5\sqrt{5}$ ✓	$0$ ✓
$\sqrt{45}$	$6\sqrt{5}$ ✓	$\sqrt{5}$ ✓

<b>+</b>	$\sqrt{54}$	$3\sqrt{6}$
$\sqrt{24}$	$5\sqrt{6}$ ✓	$5\sqrt{6}$ ✓
$-\sqrt{6}$	$2\sqrt{6}$ ✓	$2\sqrt{6}$ ✓

2)

### Adding Surds

Drag the boxes to make the sums true:

Available surd boxes:

- $\sqrt{180}$
- $6\sqrt{2}$
- $\sqrt{27}$
- $\sqrt{75}$
- $3\sqrt{3}$
- $\sqrt{3}$
- $\sqrt{45}$
- $\sqrt{27}$
- $\sqrt{8}$

Equation templates:

- +  =  $6\sqrt{3}$
- +  =  $8\sqrt{2}$
- $\sqrt{75}$  +  =  $8\sqrt{3}$
- +  =  $6\sqrt{3}$
- +  $3\sqrt{5}$  =

### Adding Surds

Drag the boxes to make the sums true:



★ Fabulous! ★

Completed equations with pink checkmarks:

- $3\sqrt{3}$  +  $\sqrt{27}$  =  $6\sqrt{3}$  ✓
- $6\sqrt{2}$  +  $\sqrt{8}$  =  $8\sqrt{2}$  ✓
- $\sqrt{75}$  +  $\sqrt{27}$  =  $8\sqrt{3}$  ✓
- $\sqrt{75}$  +  $\sqrt{3}$  =  $6\sqrt{3}$  ✓
- $\sqrt{45}$  +  $3\sqrt{5}$  =  $\sqrt{180}$  ✓

3)

**Adding Surds**

Drag the boxes to make the sums true:

Available boxes for the first puzzle:

- $\sqrt{80}$
- $\sqrt{45}$
- $\sqrt{45}$
- $\sqrt{32}$
- $\sqrt{162}$
- $\sqrt{45}$
- $3\sqrt{5}$
- $\sqrt{5}$
- $6\sqrt{5}$

Equations for the first puzzle:

- +  =  $6\sqrt{5}$
- +  =  $9\sqrt{5}$
- $\sqrt{80}$  +  =  $8\sqrt{5}$
- +  =  $4\sqrt{5}$
- +  $5\sqrt{2}$  =

**Adding Surds**

Drag the boxes to make the sums true:



★ **Fabulous!** ★

Completed equations for the second puzzle, each with a pink checkmark:

- $\sqrt{45}$  +  $\sqrt{45}$  =  $6\sqrt{5}$  ✓
- $\sqrt{45}$  +  $6\sqrt{5}$  =  $9\sqrt{5}$  ✓
- $\sqrt{80}$  +  $\sqrt{80}$  =  $8\sqrt{5}$  ✓
- $3\sqrt{5}$  +  $\sqrt{5}$  =  $4\sqrt{5}$  ✓
- $\sqrt{32}$  +  $5\sqrt{2}$  =  $\sqrt{162}$  ✓

4)

**Adding Surds**

Drag the boxes to make the sums true:

Available surd boxes:

- $\sqrt{3}$
- $\sqrt{75}$
- $6\sqrt{5}$
- $2\sqrt{3}$
- $\sqrt{75}$
- $\sqrt{243}$
- $\sqrt{80}$
- $\sqrt{80}$
- $\sqrt{75}$

Equations to solve:

- +  =  $7\sqrt{3}$
- +  =  $10\sqrt{5}$
- $\sqrt{125}$  +  =  $9\sqrt{5}$
- +  =  $6\sqrt{3}$
- +  $4\sqrt{3}$  =

**Adding Surds**

Drag the boxes to make the sums true:



★ **Fabulous!** ★

Completed equations with checkmarks:

- $\sqrt{75}$  +  $2\sqrt{3}$  =  $7\sqrt{3}$  ✓
- $6\sqrt{5}$  +  $\sqrt{80}$  =  $10\sqrt{5}$  ✓
- $\sqrt{125}$  +  $\sqrt{80}$  =  $9\sqrt{5}$  ✓
- $\sqrt{75}$  +  $\sqrt{3}$  =  $6\sqrt{3}$  ✓
- $\sqrt{75}$  +  $4\sqrt{3}$  =  $\sqrt{243}$  ✓

5)

Complete these multiplication squares. Simplify your answers.

<b>X</b>	$\sqrt{10}$	$\sqrt{4}$
$\sqrt{5}$	<input type="text"/>	<input type="text"/>
$\sqrt{6}$	<input type="text"/>	<input type="text"/>

<b>X</b>	$\sqrt{9}$	$\sqrt{8}$
$\sqrt{6}$	<input type="text"/>	<input type="text"/>
$\sqrt{8}$	<input type="text"/>	<input type="text"/>

Complete these multiplication squares. Simplify your answers.

<b>X</b>	$\sqrt{10}$	$\sqrt{4}$
$\sqrt{5}$	$5\sqrt{2}$ ✓	$2\sqrt{5}$ ✓
$\sqrt{6}$	$2\sqrt{15}$ ✓	$2\sqrt{6}$ ✓

<b>X</b>	$\sqrt{9}$	$\sqrt{8}$
$\sqrt{6}$	$3\sqrt{6}$ ✓	$4\sqrt{3}$ ✓
$\sqrt{8}$	$6\sqrt{2}$ ✓	$8$ ✓

6)

**Multiplying Surds**

Drag the boxes to make the sums true:

Available surd boxes:

- $\sqrt{4}$
- $2\sqrt{18}$
- $\sqrt{2}$
- $\sqrt{64}$
- $\sqrt{125}$
- $\sqrt{2}$
- $18\sqrt{6}$
- $\sqrt{2}$
- $\sqrt{5}$

Equation boxes to be completed:

- $\times$   =  $\sqrt{8}$
- $\times$   =  $5\sqrt{10}$
- $\sqrt{36}$   $\times$   =  $3\sqrt{8}$
- $\times$   =  $4\sqrt{20}$
- $\times$   $3\sqrt{3}$  =

**Multiplying Surds**

Drag the boxes to make the sums true:



★ **Fabulous!** ★

Completed equations with pink checkmarks:

- $\sqrt{2}$   $\times$   $\sqrt{4}$  =  $\sqrt{8}$  ✓
- $\sqrt{125}$   $\times$   $\sqrt{2}$  =  $5\sqrt{10}$  ✓
- $\sqrt{36}$   $\times$   $\sqrt{2}$  =  $3\sqrt{8}$  ✓
- $\sqrt{64}$   $\times$   $\sqrt{5}$  =  $4\sqrt{20}$  ✓
- $2\sqrt{18}$   $\times$   $3\sqrt{3}$  =  $18\sqrt{6}$  ✓

7)

### Multiplying Surds

Drag the boxes to make the sums true:

Surds available for drag:

- $\sqrt{6}$
- $\sqrt{2}$
- $\sqrt{20}$
- $2\sqrt{27}$
- $\sqrt{6}$
- $18\sqrt{9}$
- $\sqrt{48}$
- $\sqrt{3}$
- $\sqrt{5}$

Equations to complete:

- $\times$   =  $\sqrt{36}$
- $\times$   =  $2\sqrt{10}$
- $\sqrt{36}$   $\times$   =  $3\sqrt{12}$
- $\times$   =  $4\sqrt{15}$
- $\times$   $3\sqrt{3}$  =

### Multiplying Surds

Drag the boxes to make the sums true:



★ Fabulous! ★

Completed equations with pink checkmarks:

- $\sqrt{6}$   $\times$   $\sqrt{6}$  =  $\sqrt{36}$  ✓
- $\sqrt{20}$   $\times$   $\sqrt{2}$  =  $2\sqrt{10}$  ✓
- $\sqrt{36}$   $\times$   $\sqrt{3}$  =  $3\sqrt{12}$  ✓
- $\sqrt{48}$   $\times$   $\sqrt{5}$  =  $4\sqrt{15}$  ✓
- $2\sqrt{27}$   $\times$   $3\sqrt{3}$  =  $18\sqrt{9}$  ✓



8)

### Multiplying Surds

Drag the boxes to make the sums true:

Available boxes for drag-and-drop:

- $\sqrt{3}$
- $\sqrt{45}$
- $\sqrt{3}$
- $\sqrt{6}$
- $3\sqrt{48}$
- $\sqrt{12}$
- $\sqrt{3}$
- $\sqrt{5}$
- $48\sqrt{6}$

Equations to be solved:

- $\times$   =  $\sqrt{30}$
- $\times$   =  $3\sqrt{15}$
- $\sqrt{48}$   $\times$   =  $4\sqrt{9}$
- $\times$   =  $2\sqrt{9}$
- $\times$   $4\sqrt{2}$  =

### Multiplying Surds

Drag the boxes to make the sums true:



Equations with solutions:

- $\sqrt{5}$   $\times$   $\sqrt{6}$  =  $\sqrt{30}$  ✓
- $\sqrt{3}$   $\times$   $\sqrt{45}$  =  $3\sqrt{15}$  ✓
- $\sqrt{48}$   $\times$   $\sqrt{3}$  =  $4\sqrt{9}$  ✓
- $\sqrt{3}$   $\times$   $\sqrt{12}$  =  $2\sqrt{9}$  ✓
- $4\sqrt{2}$   $\times$   $3\sqrt{48}$  =  $48\sqrt{6}$  ✓