1 $8300 = 100 \times 83$ $\sqrt{100} = 10$, $\sqrt{81} = 9$ $10 \times 9 = 90$

Circle the number that is closest in value to $\sqrt{8300}$

[1 mark]

19 90 830 900

1

2 Work out $\sqrt{18} - \frac{28}{\sqrt{50}}$

Give your answer in the form $\frac{\sqrt{a}}{b}$ where a and b are integers.

[4 marks]

$\sqrt{18} - \frac{28}{\sqrt{50}} \times \frac{\sqrt{50}}{\sqrt{50}}$ (1)

$\sqrt{18} - \frac{28\sqrt{50}}{50}$

$\frac{50\sqrt{18} - 28\sqrt{50}}{50}$

$= \frac{50\sqrt{9\times2} - 28\sqrt{25\times2}}{50}$ (1)

$= \frac{150\sqrt{2} - 140\sqrt{2}}{50}$ (1)

$= \frac{10\sqrt{2}}{50}$

$= \frac{\sqrt{2}}{5}$ (1)

Answer $\frac{\sqrt{2}}{5}$

3 Show that $\dfrac{\sqrt{150}-\sqrt{6}}{\sqrt{2}\times\sqrt{3}}$ simplifies to an integer.

[3 marks]

$\sqrt{150} = \sqrt{25}\sqrt{6} = 5\sqrt{6}$

$\sqrt{2}\times\sqrt{3} = \sqrt{6}$ (1)

$= \dfrac{5\sqrt{6}-\sqrt{6}}{\sqrt{6}}$ (1)

$= \dfrac{\sqrt{6}}{\sqrt{6}}\left(\dfrac{5-1}{1}\right)$

$= 4$ (1)

4 Simplify $\sqrt{5}\,a + \sqrt{5}\,a$

Circle your answer.

[1 mark]

$5a$ $5a^2$ $2\sqrt{5}\,a$ $\sqrt{10}\,a$

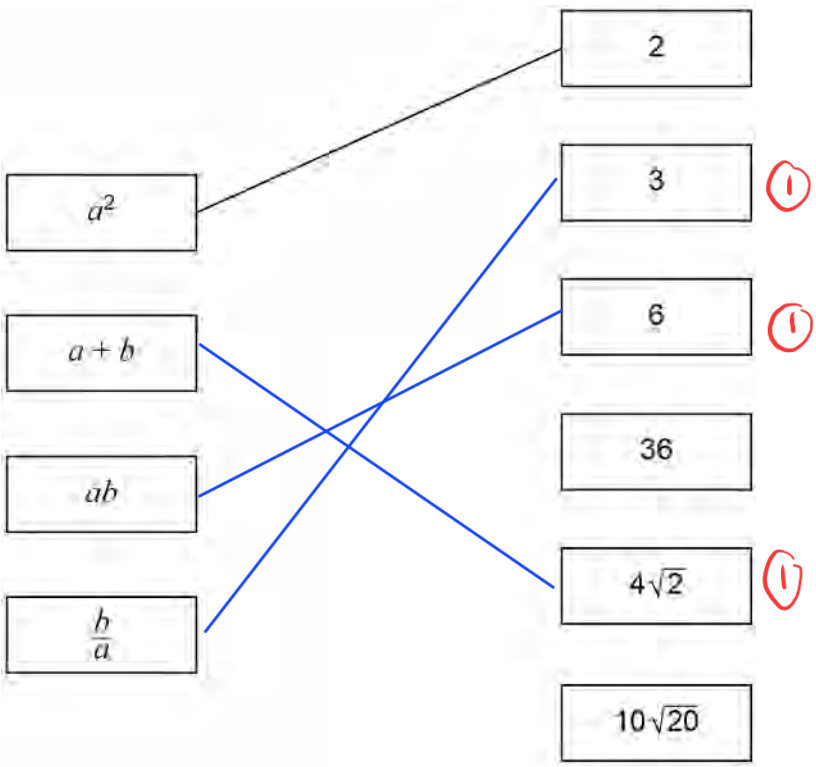
(1)

5 $a = \sqrt{2}$ and $b = \sqrt{18}$

Match each expression to its value.

One has been done for you.

[3 marks]



6 Work out $\sqrt{2\frac{13}{16}} - \frac{2}{\sqrt{5}}$

Give your answer in the form $\frac{a\sqrt{5}}{b}$ where a and b are integers.

[4 marks]

$2\frac{13}{16} = \frac{45}{16}$

$\sqrt{\frac{45}{16}} = \sqrt{\frac{9\times5}{16}} = \frac{3}{4}\sqrt{5}$ (1)

$\frac{2}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$ (1)

$\frac{5\times 3\sqrt{5}}{5\times 4} - \frac{2\sqrt{5}\times 4}{5\times 4}$

$= \frac{15\sqrt{5} - 8\sqrt{5}}{20}$ (1) $= \frac{7\sqrt{5}}{20}$

Answer $\frac{7\sqrt{5}}{20}$ (1)