hegartymaths

Rationalising surds (2)

Getting ready for A-Level Maths...

*"The most important investment you can make is in **yourself**."*

Difference of two squares

$$(a + b)(a - b) = a^2 - b^2$$

$(2 + \sqrt{5})(2 - \sqrt{5})$

$(6 - 4\sqrt{2})(6 + 4\sqrt{2})$

Rationalising surds (2)

My turn

Rationalise the following giving your answer in the form $a + b\sqrt{3}$. State a and b.

$$\frac{4}{1+\sqrt{3}}$$

Your turn

Rationalise the following giving your answer in the form $a + b\sqrt{7}$. State a and b.

$$\frac{18}{1+\sqrt{7}}$$

Rationalising surds (2)

My turn

Rationalise the following giving your answer in the form $a + b\sqrt{2}$. State a and b.

$$\frac{2}{3-\sqrt{2}}$$

Your turn

Rationalise the following giving your answer in the form $a + b\sqrt{5}$. State a and b.

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

Rationalising surds (2)

My turn

Rationalise the following giving your answer in the form $a + b\sqrt{5}$. State a and b.
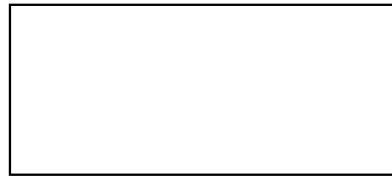
$$\frac{12}{-1+\sqrt{5}}$$

Your turn

Rationalise the following giving your answer in the form $a + b\sqrt{11}$. State a and b.
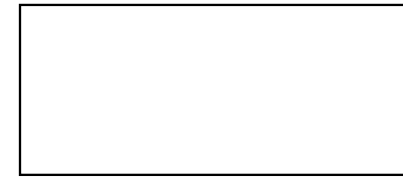
$$\frac{20}{-3+\sqrt{11}}$$

Rationalising surds (2)

My turn

A rectangle has an area $(2 + \sqrt{2})cm^2$ and a width of $(3\sqrt{2} - 4)$ *cm.* Find the length and state your answer in the form $a + b\sqrt{2}$ where a and b are integers.

Your turn

A rectangle has an area $(15 - 6\sqrt{3})cm^2$ and a width of $(2\sqrt{3} - 3)$ *cm.* Find the length and state your answer in the form $a + b\sqrt{3}$ where a and b are integers.

1. Rationalise the following giving your answer in the form $a + b\sqrt{5}$. State a and b. $\dfrac{24}{1+\sqrt{5}}$

2. Rationalise the following giving your answer in the form $a + b\sqrt{6}$. State a and b. $\dfrac{2}{5-\sqrt{6}}$

3. Rationalise the following giving your answer in the form $a + b\sqrt{7}$. State a and b. $\dfrac{18}{\text{-}2+\sqrt{7}}$

4. A rectangle has an area $(10 + 4\sqrt{3})$ cm^2 and a width of $(3\sqrt{3} - 5)$ cm. Find the length and state your answer in the form $a + b\sqrt{3}$ where a and b are integers.

1. Rationalise the following giving your answer in the form $a + b\sqrt{5}$. State a and b. $\dfrac{24}{1+\sqrt{5}}$

   $-6+6\sqrt{5}$

   $a=-6, b=6$

2. Rationalise the following giving your answer in the form $a + b\sqrt{6}$. State a and b. $\dfrac{2}{5-\sqrt{6}}$

   $\dfrac{10}{19} + \dfrac{2}{19}\sqrt{6}$

   $a= \dfrac{10}{19}, b= \dfrac{2}{19}$

3. Rationalise the following giving your answer in the form $a + b\sqrt{7}$. State a and b. $\dfrac{18}{-2+\sqrt{7}}$

   $12+6\sqrt{7}$

   $a=12, b=6$

4. A rectangle has an area $(10 + 4\sqrt{3})$ cm^2 and a width of $(3\sqrt{3} - 5)$ cm. Find the length and state your answer in the form $a + b\sqrt{3}$ where a and b are integers.

   $43+25\sqrt{3}$