

Estimating and Rounding

Monday, 19 March 2018 6:52 PM

YEAR 7 TEXTBOOK
 EXERCISE 1H
 Questions: 1, 2, 3, 5, 7, 9, 10, 11
 EXTENSION: 4, 6

Sometimes in Maths we don't need an exact answer. We are happy with an approximation

A good guess ☺

We can take a good guess by ROUNDING

Rounding values causes errors... We need to round carefully.

We can round to the nearest 10, 100, 1000, 10000 etc!

Examples:

Nearest 10: $\overset{10}{\boxed{12}}$ 10 $\overset{20}{\boxed{27}}$ 30 $\overset{30}{\boxed{36}}$ 40 $\overset{40}{\boxed{45}}$ 50 $\overset{90}{\boxed{94}}$ ←

Nearest 100: $\overset{0}{\boxed{27}}$ 0 $\overset{100}{\boxed{95}}$ 100 $\overset{300}{\boxed{346}}$ 300 $\overset{300}{\boxed{283}}$ 300 $\overset{1000}{\boxed{963}}$ ←

Nearest 1000: $\overset{0}{\boxed{386}}$ 0 $\overset{2000}{\boxed{2394}}$ 2000 $\overset{8000}{\boxed{8327}}$ 8000 $\overset{9000}{\boxed{9490}}$ 9000 $\overset{11000}{\boxed{10500}}$ ←

Significant figure

Why Round

We can round to make quick, not too accurate calculations.

Too BIG/Too SMALL/ABOUT RIGHT?

We need to be careful about rounding numbers...

Example:

$\overset{1}{\uparrow} \overset{1}{\uparrow} 27 \times 46 \approx 30 \times 50$

$\boxed{1500}$ Too Big

$\downarrow \downarrow 27 \times 46 = 20 \times 40$

$\boxed{800}$ Too Small

$\uparrow \downarrow 27 \times 46 = 30 \times 40$

$\boxed{1200}$

Closer About Right

$\overset{40}{\uparrow} 36 \downarrow = \overset{30}{\boxed{30}}$

$\uparrow \boxed{A} \boxed{B} \downarrow$

$\downarrow \boxed{A} \boxed{B} \downarrow$

$\uparrow \boxed{A} \boxed{D} \downarrow$

ROUNDING A NEW WAY

Example: Round 2387 to nearest 10, 100 and 1000

2387
 ↑
 TEN
 IF 5 or more add one
 if 4 or less leave alone!
 So the 7 changes the 8 to a 9
 add one
 Ans = 2390

↓:
 23 8 7
 23 9 0
 5 or more
 5, 6, 7, 8, 9

2387
 ↑
 HUNDREDS
 Does the 8 change the 3?
 YES!

↓:
 23:87
 2400
 5 or more

Ans = 2400
 All numbers after the rounded numbers change to zeros.

↓
 2387
 2400

2387
 ↑
 THOUSANDS
 Does the 3 change the 2?
 No!

↓
 2387
 2000

$\times 500$
 \uparrow
 THOUSANDS
 Ans = 2000

Does the \rightarrow change the \rightarrow
 No!

\downarrow
 $\underline{2387}$
 2000
 \downarrow
 $2 \overline{)387}$
 2000

ROUNDING TO NUMBERS OTHER THAN 10

$61 \div 5$
 Round this value
 $60 \div 5 = 12!$

We couldn't round to 10!
 We can divide by 5 ∞

$(61) \div 5 \approx 60 \div 5 = 12$
 $60 \div 10 = \underline{6}$
 $2, 5, 10$
 $\frac{1}{2}$

We don't always have to round both numbers!

eg. $\underline{29} \times \underline{7} \approx 30 \times 7$



\downarrow We can do this in our heads
 $= 3 \times 10 \times 7$
 $= 3 \times 7 \times 10$
 $= \underline{2} \times 10$
 $= \underline{20}$

There are lots of ways of doing this!

$2 \times 3 \times 4$
$4 \times 3 \times 2$
$2 \times 4 \times 3$

$2 \times 3 \textcircled{+} 4$
 $4 \times 3 \textcircled{+} 2$