$$\frac{IS}{OF} = \frac{\%}{100}$$

M8 - 4.0 - Percentage/Decimals Review

$$\frac{\square}{\square} = \frac{\square}{\square}$$

Calculator!
Fractions/LCD
Cross Multiply
Long Division

①

What is 170 out of 200 as a percentage?

$\% = 85\%$

$\frac{IS}{OF} = \frac{\%}{100}$ ↑ Total

$\frac{\square}{\square} = \frac{\square}{\square}$ $Over = Over$

$\frac{170}{200} = \frac{\%}{100}$ (÷ 2 / ÷ 2)

$\frac{170}{200} = \frac{85}{100}$

$\frac{170}{200} = 0.85$ ✓

Decimal<->Fraction

$\frac{1}{10} = 0.1$

$\frac{23}{100} = 0.23$

$\frac{45}{1000} = 0.045$

$\frac{3}{9} = 0.\overline{3}$

$\frac{45}{99} = 0.\overline{45}$

Decimal<->Percentage

× 100 →

$0.0073 = 0.73\%$
$0.05 = 5\%$
$0.1 = 10\%$
$0.12 = 12\%$
$0.\overline{3} = 33.\overline{3}\%$
$0.5 = 50\%$
$0.\overline{66} = 66.67\%$
$1.05 = 105\%$
$1.35 = 135\%$
$2.12 = 212\%$

← ÷ 100

Move decimal 2 places to the right.

$0.1 = 0.10$

One Decimal

Two Decimal

$\%$

Move decimal 2 places to the left.

30 is 15% of what?

$x = 200$ → $\frac{30}{x} = \frac{15}{100}$ (× 2 / × 2)

$\frac{30}{200} = 0.15$ ✓

If you don't know just divide! Bigger divided by Smaller!

Find 15% of 200.

$x = 30$ → $\frac{x}{200} = \frac{15}{100}$ (× 2 / × 2)

$\frac{30}{200} = 0.15$ Check! ✓

Cross Multiply

$\frac{x}{200} = \frac{15}{100}$

$\frac{100x}{100} = \frac{3000}{100}$

$x = 30$

Rounding

Less than 5 Round Down

$5.7\textcircled{4} = 5.7$

$5.7\textcircled{6} = 5.8$

5 or More Round Up

Round To Tenths

Logic!

Increase 200 by 15%

$15\% = 0.15$

$200 \times 0.15 = 30$ ✓

$200 + 30 = \textcircled{230}$

Multiply by the decimal

Then Add (Or Subtract*)

②

OR

$200 \times 1.15 = \textcircled{230}$

Multiply by the % you want to be!

2a

$M = 1 + 0.15$
$M = 1.15$

$Multiplier = 1 \pm r$
$M = 1 \pm r$

$Initial \times Multiplier = Final$

Check!

$\frac{230}{200} = 1.15$

Decrease 200 by 15%

$200 \times 0.15 = 30$

OR

$200 - 30 = \textcircled{170}$ ✓

$M = 1 - 0.15$
$M = 0.85$

$200 \times 0.85 = \textcircled{170}$

2a

Find a number decreased by 15% to be 170

$x = 200$ ✓ → $\frac{170}{x} = \frac{85}{100}$

$M = 100 - 15 = 85\% = 0.85$

$x \times 0.85 = 170$
$0.85x = 170$
$\frac{0.85x}{0.85} = \frac{170}{0.85}$
$x = 200$

③

Find the Percent Change increase from 200 to 230.

$\%Change = \frac{Final - Initial}{Initial}$

$\%Change = \frac{230 - 200}{200} = \frac{30}{200} = 0.15 = \textcircled{15\%}$ ✓

④

Jack ate 30 more, 15% more than Jill. How many did Jack eat!

⑤

let $j = \#Jill\ ate$ ✓

$M = 1 + 0.15 = 115\%$

$\frac{j + 30}{j} = \frac{115}{100}$

$100(j + 30) = 115j$ Cross Multiply
$100j + 3000 = 115j$ Distribute
$3000 = 15j$ Algebra M810
$j = 200$

Jack ate 230!

$1.15j = j + 30$

$200 + 30 = 230$