Warm Up Grade 8

March 3, 2016

1) Jim and Karen are competing for first place in their grade 8 class. Karen receives 23.5 out of 25 on her math test and Jim receives 29.5 out of 32. Who received the higher mark?

K $\frac{23.5}{25} = 0.94 = 94\%$ J $\frac{29.5}{32} = 0.921875 \approx 92\%$

Karen made the higher Mark

2) The cost to make a pen is \$0.15. The company sells the pen for 450% of its cost to make. How much profit do they make off of 1 pen?

0.15 x 450% = Selling Cost

0.15 x 4.5 = 0.675 ≈ 0.68

Profit = Sell − Cost

= 0.68 − 0.15 = 0.53

You make a profit of \$0.53 off each pen

3) 26% of a number is 93.6, what is that number?

n =

26% x n = 93.6

↓ change % to decimal

0.26 n = 93.6

Solve for n (how? divide both sides by # infront of variable)

$\frac{0.26n}{0.26} = \frac{93.6}{0.26}$

n = 360

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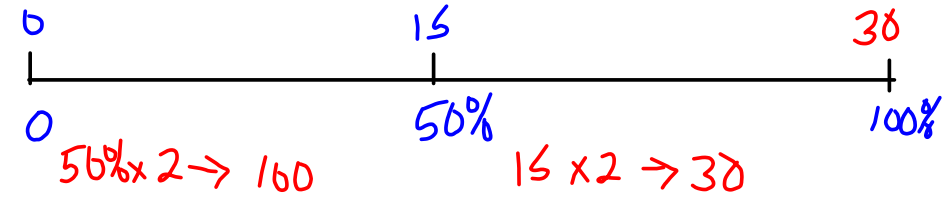
$\frac{0.50n}{0.5} = \frac{15}{0.5}$

3a) 50% of a number is 15

n = 30



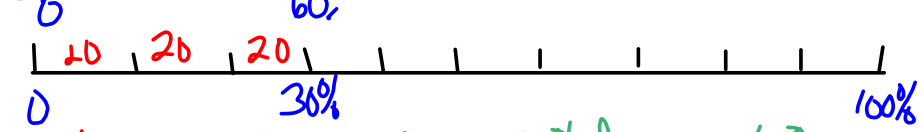
50% x 2 → 100 15 x 2 → 30

b) 75% of a number is 12

75% of — is 12
÷3
25% of — is 12 ÷ 3 = 4
100% of — is 4 x 4 → 16

75% n = 12
0.75n = 12
$\frac{0.75n}{0.75} = \frac{12}{0.75}$
n = 16

c) 30% of a number is 60



100% → 20 x 10 = 200

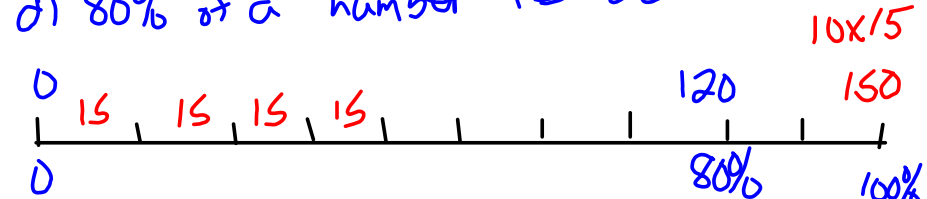
÷3 30% of — = 60
10% of — = 60 ÷ 3
x10 = 20
x10
100% of — = 20 x 10
= 200

0.3 x n = 60

$\frac{0.3n}{0.3} = \frac{60}{0.3}$

n = 200

d) 80% of a number is 120



120 ÷ 8 = 15

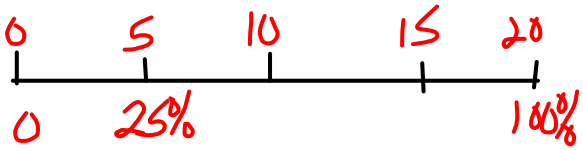
÷8 80% of — = 120 ÷ 8
10% of — = 120 ÷ 8
x10 = 15
x10
100% of — = 15 x 10
= 150

0.8 x n = 120

$\frac{0.8n}{0.8} = \frac{120}{0.8}$

n = 150

4a) 25% of a number is 5

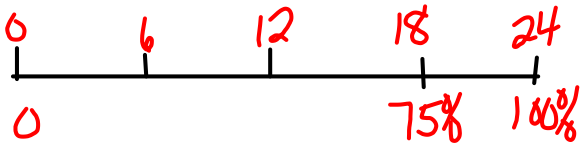


25% of ___ = 5
×4 ×4
100% of ___ = 20

$\frac{0.25n}{0.25} = \frac{5}{0.25}$

$n = 20$

b) 75% of a number is 18



75% of ___ = 18
25% of ___ = 18 ÷ 3
= 6
100% of ___ = 6 × 4
= 24

$0.75 \times n = 18$

$\frac{0.75n}{0.75} = \frac{18}{0.75}$

$= 24$

c) 4% of a number is 32

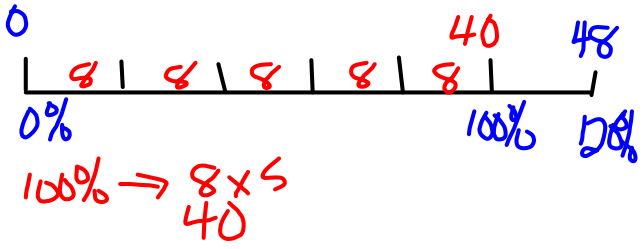
$0.04 \times n = 32$

$\frac{0.04n}{0.04} = \frac{32}{0.04}$

$n = 800$

4% of ___ = 32
1% of ___ = 32 ÷ 4
= 8
100% of ___ = 8 × 100
800

d) 120% of a number is 48



100% → 8 × 5
40

$1.2 \times n = 48$

$\frac{1.2n}{1.2} = \frac{48}{1.2}$

$n = 40$

7. a) 15% is 125

15% of n = 125

$0.15n = 125$

$\frac{0.15n}{0.15} = \frac{125}{0.15}$

$n = 833.3$

b) 9% of ___ is 45 ÷9

÷9

1% of ___ is 5

100% of ___ is 5x100

500

number is 500

$0.09n = 45$

$\frac{0.09n}{0.09} = \frac{45}{0.09}$

$n = 500$

c) 0.8% of ___ is 12

↓ change to dec

$0.008 \times n = 12$

$\frac{0.008n}{0.008} = \frac{12}{0.008}$

$n = 1500$

10. 2001 → 12% less miners

12% of miners in 1986
12% of 193 000
0.12 × 193 000
23160 → fewer miners

So in 2001
193 000 − 23 160
169 840 miners in 2001

12. Jemma

Week 1 Increase
15% of 1.5
0.15 × 1.5
0.225

Mass after week 1 → 1.5 + 0.225
1.725

Week 2 Increase
15% of 1.725
0.15 × 1.725
0.25875

Jemma's mass-week 2
1.725 + 0.25875
1.98375 kg

George
30% increase in 2 weeks
30% of 1.5
= 0.3 × 1.5
= 0.45

Total mass 1.5 + 0.45
1.95 kg

Finding the Percent Increase or Percent Decrease

this means divide →

$$\frac{\text{Difference}}{\text{Original}} \times 100$$

answer is a %

Remember

Difference = (Big) − (Small)

Subtraction

******** Important

Percent Increase = $\frac{\text{Amount of Increase}}{\text{Original Amount}} \times 100\%$ (Amount of Increase = New Price - Original Price)

Percent Decrease = $\frac{\text{Amount of Decrease}}{\text{Original Amount}} \times 100\%$ (Amount of Decrease = Original Price - NewPrice)

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Example 4

(a) The price of a carton of milk in the school cafeteria increased from \$0.95 to \$1.25. What was the percent increase in price?

(b) The price of a green salad decreased from \$2.50 to \$1.95. What was the percent decrease in price?

solution

(a) Amount of Increase = $1.25 - 0.95$

$= 0.30$

Percent Increase = $\frac{\text{Diff}}{\text{orig}} \times 100$

$= \frac{0.30}{0.95} \times 100$

= Divide on calculator

0.31578×100

$\approx 31.6\%$

(b) Amount of decrease = Big - final

$= 2.50 - 1.95$

$= 0.55$

Percent Decrease $\frac{\text{Diff}}{\text{orig}} \times 100\%$

$= \frac{0.55}{2.50} \times 100$

$= 0.22 \times 100$

$= 22\%$

Class / Homework

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5, #6, ~~#8~~, ~~#9~~, #11, , #13, #15, [redacted]

5a) 5cm to 10cm (Increasing)

Difference = Big − Small
= 10 − 5
= 5

% Increase = $\frac{\text{Diff}}{\text{orig}} \times 100\%$

$= \frac{5}{5} \times 100\%$

$= 1 \times 100\%$

$= 100\%$

Elastic Stretch 100%

13a)

Year 2000

24% of 693000

0.24 x 693000

Ans

NewPop 693000 + Ans

11%

b) NewPop x 0.11

Pop at 2005 =

c) Diff = Pop at 2005 − 693000 (orig)

% Inc = $\frac{\text{Diff}}{\text{orig}} \times 100\%$