Worked Solutions - General

Q1 $\frac{0.05}{22.5} \times 100\% = 0.2\%$

$\frac{\text{error}}{\text{measurement}} \times 100\%$

Q2 Amount $= 90(1 + 0.035)^7$ compound interest!

$= \$115$

Q3 Tax $= \$5400 + 0.4(7500)$ using the third row of the table

$= \$8400$

Q4 $= 7x^0 - 5x$

$= 7 \times 1 - 5x$

$= 7 - 5x$

the 0 power only applies to the x, not the 7

$x^0 = 1$ not 0!!

← these are not like terms so the answer cannot be simplified further

Q5 a) $A + 12B = 800$ ——— ①

$A + 20B = 1200$ ——— ②

② - ①

$A - A + 20B - 12B = 1200 - 800$

$0 + 8B = 400$

$B = 50$

This answer is showing the elimination method. You could also do this by substitution.

The yellow underline shows equation ①

$A + 12(50) = 800$

$A + 600 = 800$

$A = 200$

Now that we have B, we can sub its value back into either equation above (it doesn't matter which one) to find A

b) So she pays off \$200 initially from the \$3000 loan:

Amount owing $= 3000 - 200$

$= 2800$

She pays off \$50 a month, so we divide this \$2800 by \$50:

Months taken $= 2800 \div 50$

$= 56$ months

Q6 4.2 GB $= 4.2 \times 1024 \times 1024$ KB

$= 4\,404\,019.2$ KB

Time taken $= 4\,404\,019.2 \div 700$

$= 6\,291.456$ seconds

$= 104.8576$ minutes

$= 1$ hour 45 minutes

This in on the formula sheet.

speed = 700 KB/s

÷ 60

If you need any of these answers explained further, contact 04Thinking (0484 465 464) and speak with a maths tutor now!

04 Thinking

Q7 a) z-score English $= \frac{76 - 68}{6}$

$= 1.33$

z-score Maths $= \frac{76 - 51}{16}$

$= 1.56$

$z = \frac{x - \bar{x}}{s}$

This is on the formula sheet.

b) Yumi performed better in maths because her z-score is higher. This means this score is further above the mean.

Q8 a) $\angle GOH = 220 - 170$

$= 50°$

It's good to redraw the △ to make it extra clear for yourself

$A = \frac{1}{2}ab\sin C$

$= \frac{1}{2}(80)(67)(\sin 50°)$

$= 2053\ m^2$

We can't use $A = \frac{1}{2}bh$ because we aren't given a perpendicular height.

b)

We need to split the 101° using the 65°

$101 - 65 = 36°$

Bearings go clockwise from the vertical.

Bearing $= 360 - 36$

$= \underline{324°}$

Q9 $\frac{5x + 1}{2} = 4x - 7$

$5x + 1 = 2(4x - 7)$ ↓ multiply both sides by 2

$5x + 1 = 8x - 14$ ↓ expand the brackets

$15 = 3x$ ↓ collect like terms

$x = 5$

Q10 $R \propto \frac{1}{\sqrt{D}}$

$R = \frac{k}{\sqrt{D}}$

$100 = \frac{k}{\sqrt{3}}$

$k = 173.2$

$\therefore R = \frac{173.2}{\sqrt{D}}$

$R = \frac{173.2}{\sqrt{5}}$

$= 77$ rabbits

$\therefore$ 23 fewer rabbits

inversely = $\frac{1}{D}$ root = $\sqrt{D}$ combined → $\frac{1}{\sqrt{D}}$

sub in 100 for R and 3 for D

sub k back into original

now sub 5 in for D.

some questions are sneaky like this! Be careful!