

Worked Solutions - General

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

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 $= 7x^0 - 5x$ the 0 power only applies to the x, not the 7
 $= 7 \times 1 - 5x$ $x^0 = 1$ not 0!!
 $= 7 - 5x$ ← these are not like terms so the answer cannot be simplified further

Q5 a) $A + 12B = 800$ ① This answer is showing the elimination method. You could also do this by substitution.
 $A + 20B = 1200$ ②

② - ①

$A - A + 20B - 12B = 1200 - 800$ The yellow underline shows equation ①
 $0 + 8B = 400$
 $B = 50$

$A + 12(50) = 800$

$A + 600 = 800$

$A = 200$

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 $4.2 \text{ GB} = 4.2 \times 1024 \times 1024 \text{ RB}$ This is on the formula sheet.

$= 4404019.2 \text{ RB}$

Time taken = $4404019.2 \div 700$ speed = 700 kB/s

$= 6291.456$ seconds

$= 104.8576$ minutes

$= 1 \text{ hour } 45 \text{ minutes}$

↳ = 60

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) $\angle GOH = 220 - 170$
 $= 50^\circ$



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

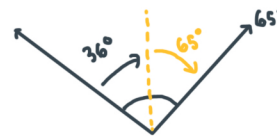
$A = \frac{1}{2} ab \sin C$
 $= \frac{1}{2} (80)(61)(\sin 50^\circ)$
 $= 2053 \text{ m}^2$

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



We need to split the 101° using the 65°

$101 - 65 = 36^\circ$



Bearing = $360 - 36$
 $= \underline{\underline{324^\circ}}$

Bearings go clockwise from the vertical.

Q9 $\frac{5x+1}{2} = 4x-7$ multiply both sides by 2
 $5x+1 = 2(4x-7)$ expand the brackets
 $5x+1 = 8x-14$ collect like terms
 $15 = 3x$
 $x = 5$

Q10 $R \propto \frac{1}{\sqrt{D}}$ inversely = $\frac{1}{D}$ combined $\rightarrow \frac{1}{\sqrt{D}}$
 root = \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

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!