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1. Given 7.18 - 2.1 x 3

Remembering BODMAS we do the Multiplication first then the Addition.

2.1 x 3 = 6.3 then 7.18 - 6.3 = 0.88

2. Given $1\frac{1}{8} \div \frac{3}{4}$

Using the rules for fractions we have

Make top heavy $\frac{9}{8} \div \frac{3}{4}$

We then turn the fraction $\frac{3}{4}$ up side down and then change division to multiplication.

$$\frac{9}{8} \cdot \frac{4}{3} = \frac{9}{6} = \frac{3}{2}$$

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3. Given $5 - x > 2\cdot(x + 1)$

First multiply bracket out $5 - x > 2x + 2$

Gather terms together $5 - 2 > 2x + x$

Simplify $3 > 3x$

Hence $x < 1$

4. Given $f(x) = x^2 + 5x$

Substitute $x = -3$

$f(-3) = (-3)^2 + 5\cdot(-3) = 9 - 15 = -6$

5. Given $p^2 - 4q^2$

(a) Factorising we get $p^2 - 4q^2 = (p - 2q)\cdot(p + 2q)$ difference of 2 squares

(b) Using part (a) we can simply the expression given below as follows:-

$$\frac{p^2 - 4\cdot q^2}{3p + 6q} = \frac{(p - 2q)\cdot(p + 2q)}{3(p + 2q)} = \frac{(p - 2q)}{3}$$

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6. Given $L = \frac{1}{2} \cdot (h - t)$

Rearranging to get **h** to be the subject of the equation we have

1. Multiply through by 2 $2L = (h - t)$
2. Remove the brackets $2L = h - t$
3. Add t to both sides $2L + t = h - t + t$
4. Simplify $2L + t = h$

Hence we have $h = 2L + t$

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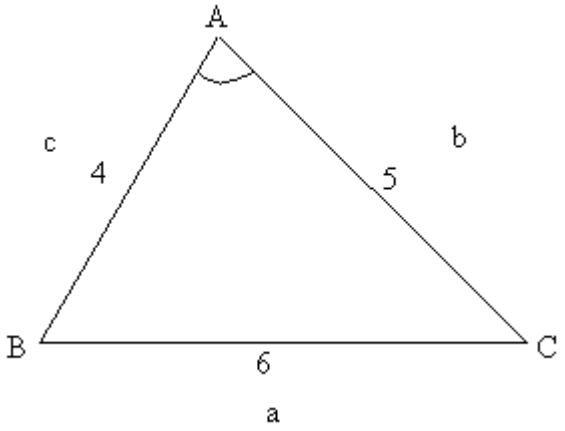
7. Given the diagram below we can find cos(A) as follows:-



Using the cosine formula we have

$$\cos(A) = \frac{b^2 + c^2 - a^2}{2b \cdot c} = \frac{5^2 + 4^2 - 6^2}{2 \cdot 5 \cdot 4} = \frac{25 + 16 - 36}{40} = \frac{5}{40} = \frac{1}{8}$$

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8. Given the data we can draw 2 box plots.

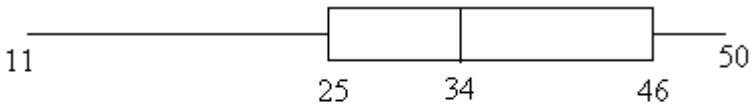
11 19 22 25 25 29 31 34 36 38 40 46 49 50 50

Handed out questionnaire

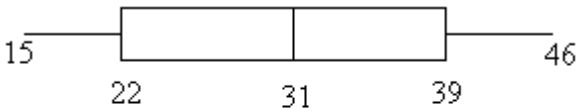
15 15 21 22 23 25 26 31 33 34 37 39 41 46 46

Posted out questionnaire

Handed out	Posted out
$Q_1 = 25$	$Q_1 = 22$
$Q_2 = 34$	$Q_2 = 31$
$Q_3 = 46$	$Q_3 = 39$



handed



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9. Given $f(x) = x^2 + 2x - 1$ $g(x) = 5x + 3$

For $\boxed{f(x) = g(x)}$ we have

$$x^2 + 2x - 1 = 5x + 3$$

$$\left(x^2 + 2 \cdot x - 1\right) - (5x + 3) = 0$$

$$x^2 + (2x - 5x) - 1 - 3 = 0$$

$$x^2 - 3x - 4 = 0$$

Factorising we get

$$(x - 4) \cdot (x + 1) = 0$$

$\boxed{x = 4}$ And $\boxed{x = -1}$

10. Given $\sqrt{27} + 2 \cdot \sqrt{3}$

Simplifying we get

$$\sqrt{9} \cdot \sqrt{3} + 2 \cdot \sqrt{3} = 3 \cdot \sqrt{3} + 2 \cdot \sqrt{3} = 5 \cdot \sqrt{3}$$

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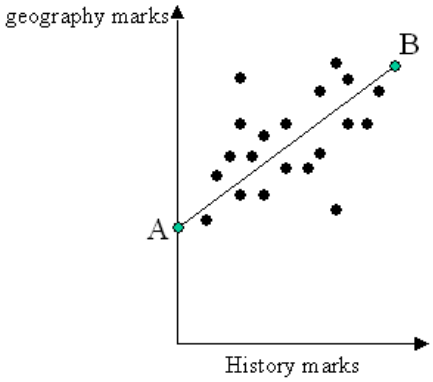
11. Given $y^8 \cdot (y^3)^{-2}$

Simplifying using the rules for indices we have

$$y^8 \cdot (y^3)^{-2} = y^8 \cdot y^{-6} = y^{(8-6)} = y^2$$

12. Given the graph with the best-fit line AB below.



and A (0, 12) B (90, 82)

We can work out the equation of the straight line as follows:-

Gradient

$$m = \frac{g_2 - g_1}{h_2 - h_1} = \frac{82 - 12}{90 - 0} = \frac{70}{90} = \frac{7}{9}$$

Equation is given by $g - b = m(h - a)$ $\quad (a, b) = (0, 12)$

$$m = \frac{7}{9}$$

$$g - 12 = \frac{7}{9} \cdot (h - 0)$$

$$g = \frac{7}{9} \cdot h + 12$$

13. From the information given we can write 2 equations.

(a) $4p + 3g = 130$

(b) $2p + 4g = 120$

(c) Solving the 2 equations in part (a) and (b) we can get the cost for a peach (p) and grapefruit (g).

$4p + 3g = 130$ Equation 1

$2p + 4g = 120$ Equation 2

Multiplying equation 2 by 2 subtracting equation 1 from it we have

$4p + 8g = 240$

$4p + 3g = 130$

$5g = 110$

$g = 22$

Substituting the value found for (g) into equation 1 we can find (p).

$4p + 3(22) = 130$

$4p = 130 - 66$

$4p = 64$

$p = 16$

Hence 3 peaches and 2 grapefruits will cost

$3p + 2g = 3(16) + 2(22) = 92$pence