

CREDIT 2002 – Paper I (Solutions)

1. $7.18 - 2.1 \times 3$
 $7.18 - 6.3$
 0.88

2. $1\frac{1}{8} \div \frac{3}{4} \rightarrow \frac{9^3}{8^2} \times \frac{4^1}{3^1} \rightarrow \frac{3}{2} \rightarrow 1\frac{1}{2}$

3. $5 - x > 2(x+1) \rightarrow 5 - x > 2x + 2$
 $\rightarrow 5 - 2 > 2x + x \rightarrow 3 > 3x \rightarrow 1 > x$
 $\rightarrow x < 1$

4. $f(x) = x^2 + 5x \rightarrow f(-3) = (-3)^2 + 5(-3)$
 $\rightarrow f(-3) = 9 - 15 = -6$

5. a) $p^2 - 4q^2 \rightarrow (p+2q)(p-2q)$
 b) $\frac{p^2 - 4q^2}{3p + 6q} \rightarrow \frac{(p+2q)(p-2q)}{3(p+2q)} \rightarrow \frac{(p-2q)}{3}$

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

7. Use Cosine Rule

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos A = \frac{5^2 + 4^2 - 6^2}{2(5)(4)} \rightarrow \frac{5}{40} \rightarrow \frac{1}{8}$$

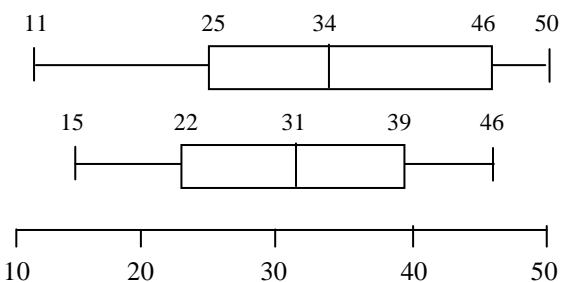
8. Use Box plot (or back to back stem & leaf)

1st Set:

Lo = 11, Q₁ = 25, Q₂ = 34, Q₃ = 46, Hi = 50

2nd Set:

Lo = 15, Q₁ = 22, Q₂ = 31, Q₃ = 39, Hi = 46



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

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

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

$$\rightarrow x-4=0 \text{ or } x+1=0$$

Hence, $x=4$ or $x=-1$

10. $\sqrt{27} + 2\sqrt{3} \Rightarrow \sqrt{9 \times 3} + 2\sqrt{3}$
 $\Rightarrow \sqrt{9}\sqrt{3} + 2\sqrt{3} \Rightarrow 3\sqrt{3} + 2\sqrt{3}$
 $\Rightarrow 5\sqrt{3}$

11. $y^8 \times (y^3)^{-2} \rightarrow y^8 \times y^{-6} \rightarrow y^2$

12. **A** has co-ordinates (0, 12)

B has co-ordinates (90, 82)

$$\text{gradient AB} = \frac{82-12}{90-0} \rightarrow \frac{70}{90} \rightarrow \frac{7}{9}$$

Using $y = mx + c$

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

13. Let cost of peach = p pence

Let cost of grapefruit = g pence

a) $4p + 3g = 130$ (1)

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

Solve simultaneously

(1) $4p + 3g = 130$ (3)

(2) $\times 2$.. $4p + 8g = 240$ (4)

Subtract: (4) - (3)

$$5g = 110$$

Hence $g = 22$, substitute into (1)

$$4p + 66 = 130 \text{ hence } p = 16$$

Thus 3 peaches + 2 grapefruit cost

$$3 \times 16 + 2 \times 22 = 92 \text{ pence.}$$
