CREDIT 2003 – Paper I

1. $5.04 + 8.4 \div 7$
$5.04 + 1.2$
6.24

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2. $\frac{2}{7}\left(1\frac{3}{4}+\frac{3}{8}\right) \Rightarrow \frac{2}{7}\left(\frac{7}{4}+\frac{3}{8}\right) \Rightarrow \frac{2}{7}\left(\frac{14}{8}+\frac{3}{8}\right)$

$\Rightarrow \frac{\cancel{2}^{1}}{7} \times \frac{17}{\cancel{8}^{4}} \Rightarrow \frac{17}{28}$

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3. $3(2x-4)-4(3x+1)$
$\rightarrow 6x-12-12x-4$
$\rightarrow \quad -6x-16$

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4. a) $f(x) = 7-4x$
$\rightarrow f(-2) = 7-4(-2)$
$\rightarrow \quad 7+8 \quad \rightarrow \quad 15$

b) $f(t) = 7-4t$

Since $f(t) = 9 \quad \rightarrow \quad 9 = 7-4t$

$4t = -2 \rightarrow t = -\frac{1}{2}$

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5. $2x^2 - 7x - 15 \quad \rightarrow \quad (2x+3)(x-5)$

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6. a) $m = \frac{rise}{run} = \frac{3-(-7)}{4-(-1)} = \frac{10}{5} = 2$

b) $y = mx + c$, so $y = 2x - 5$ (since c = –5)

c) $(3k, k)$ must satisfy the equation

$k = 2(3k) - 5 \quad k = 6k - 5 \quad k = 1$

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7. Let cost of 1 night = £ n, breakfast = £ b

a) $3n + 2b = 145$ …… (1)
b) $5n + 3b = 240$ ……(2)

multiply (1) x 5 and (2) by 3
to eliminate n, leaving b

$15n + 10b = 725$ … (3)
$15n + 9b = 720$ … (4)

Subtract: (3) – (4) $\Rightarrow \quad b = 5$

Hence cost of one breakfast = £5

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8. 40 balls altogether

a) P(6) = $\frac{4}{40} \rightarrow \frac{1}{10}$

b) P(yellow 6) = $\frac{1}{40}$

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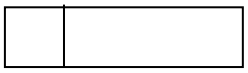
9. Each line in the box represents a quartile.



LQ Median UQ

Lower quartile is 25%

So 25% of matchboxes contain less than 50 matches

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10. i) Parents : Teacher : Pupils
1 : 3 : 15

hence for 45 pupils

3 : 9 : 45

9 teachers must accompany them

ii) Each group contains 15 + 3 + 1 = 19 persons

so 5 groups can go (5 x 19 = 95)

Hence (5 × 15 = 75) So, 75 pupils can go.

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11. i) $S_3 = 1 + 3 + 5 = 9$

ii) also $S_4 = 16$ and $S_5 = 25$

So, $S_n = n^2$

iii) the $(n + 1)^{th}$ term is the term that is added onto S_n to get S_{n+1}

Hence this term is $S_{n+1} - S_n$

$= (n + 1)^2 - n^2$

$= \quad n^2 + 2n + 1 - n^2 \quad = \quad 2n + 1$

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12. i) $8^{\frac{2}{3}} = \left(\sqrt[3]{8}\right)^2 = 2^2 = 4$

ii) $\frac{\sqrt{24}}{\sqrt{2}} = \sqrt{\frac{24}{2}} = \sqrt{12} = \sqrt{4\times 3} = \sqrt{4}\sqrt{3} = 2\sqrt{3}$

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13. Let TD = h Length DB = $3x - x = 2x$

Area of triangular pocket = ½ base x height

Area triangle = ½ × $2x$ × $h \quad \rightarrow \quad x\,h$

Area of clipboard = $3x \times 4x = 12x^2$

Area triangle = ¼ area clipboard

So, $x\,h = 3x^2$ Hence: $h = 3x$

END OF QUESTION PAPER (*Rev. March 2007)*