RADLEY COLLEGE
Entrance Scholarships

Foundation Paper – Mathematics

Saturday 27th November 2010

Time allowed - 60 minutes

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1. Work out the following sums:

a. $\begin{array}{r} 146 \\ +\ 302 \\ \hline \\ \hline \end{array}$ b. $\begin{array}{r} 543 \\ +\ 629 \\ \hline \\ \hline \end{array}$ c. $\begin{array}{r} 964 \\ -\ 325 \\ \hline \\ \hline \end{array}$

(6 marks)

2. Answer each of the following:

a. 0.39 x 100 = ...

b. 2^4 = ...

c. 30% of 65 is .....

d. 121,000 divided by 11 is .....

e. What is 2 as a percentage of 40? .....

f. Two angles in a triangle are 36 and 87 degrees. What is the size of the third angle? .....

g. $\frac{210}{336}$ in its simplest form is .....

(14 marks)

3. What numbers must fit into the boxes in order to make these sums work?

a. 29 + ☐ = 82

b. ☐ - 43 = 19

c. ☐ x 6 = 204

d. 441 ÷ ☐ = 49

(8 marks)

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4. List all of the factors of 36

..... *(3 marks)*

5. Solve the following equations for x, showing all of your working.

   a. $6x - 7 = 47$

   b. $3(2x + 1) = 75$

(6 marks)

6. A square has perimeter 12 cm. What is the area of the square?

..... *(5 marks)*

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7. Work out the following long multiplications:

a.
$$\begin{array}{r} 108 \\ \times\ 23 \\ \hline \\ \hline \\ \hline \end{array}$$

b.
$$\begin{array}{r} 205 \\ \times\ 54 \\ \hline \\ \hline \\ \hline \end{array}$$

(6 marks)

8. When two numbers are added together, the total is 57.
If one is subtracted from the other, the result is 21.
Find the two numbers.

(4 marks)

9. Harry is given £30 for his birthday. He uses it to buy a bag of sweets for £3.99, a magazine for £2.50 and some stickers for 70p. He then goes into a restaurant and orders a £10.99 pizza to share with his friends, together with four glasses of orange juice for £1.50 each. How much change does he have left?

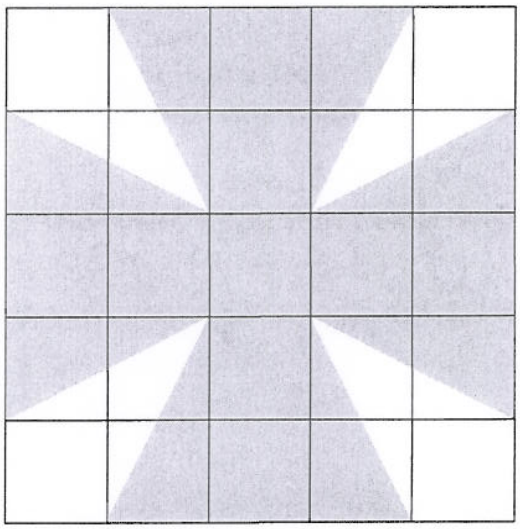
(6 marks)

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10. What is the angle between the hands of a clock at 4:15 pm?

(5 marks)

11. What is the area of the shape shown on the 5 x 5 grid below?



..... *(3 marks)*

12. What are the next 3 terms in each of the following sequences?

a. 8, 32, 128, 512, ..., ...

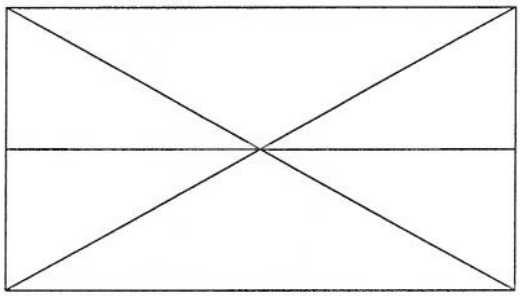
b. 17, 65, 257, 1025, ..., ...
(Hint: Try comparing this sequence to the one in part a)

c. 1, 2, 4, 3, 9, 5, 16, 7, 25, 11, ..., ...

(8 marks)

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13. How many triangles are there in the following shape?



(6 marks)

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