2011/4th A
Oundle School

Your Name:

Entrance Examination to the Fourth Form   Section A

Mathematics   30 Minutes

*Write ALL of your working on this paper. No other paper may be used. The answers alone **are of no use.** Show enough working on each question to make it clear how you reached your answer.*

You are NOT allowed to use a calculator for this section
<u>NO CALCULATORS</u>

1. Work out $2\frac{3}{5} - 1\frac{1}{6}$ Answer………………………	2. Find 32.9×7.02 Answer…………………………..
3. Divide 1936 by 5 Answer………………………	4. Calculate $43.9 + 12.1 \times 4$ Answer………………………

5. If $a = 5.1 \times 10^5$ and $b = 7 \times 10^5$ find each of the following in standard form.

   (i) $a + b$ Answer………………………………

   (ii) ab Answer………………………………

6. If $x = -2, y = 4, z = -3$ find $5yz - 3x^2$

Answer……………………………

7. Calculate $((3 \times -5) - 11) \div \frac{1}{2}$

Answer……………………………

8. Continue the patterns, giving the next two terms each time

(a) 6, 11, 16, 21, ……… , ………..

(b) $x, 2x^2, 4x^3, 8x^4$, …….….. , …...……..

(c) 21, 16, 13, 12, 13, 16, …….…. , ………..

(d) 3, 12, 27, 48, …….…. , ………..

(e) 81, 27, 9, 3, …….…. , ………..

9   If £200 is invested at a compound interest rate of 3% per year, how much will it be worth after 2 years?

Answer……………………………

10. Expand, if necessary, and simplify

(a) $3(x - 2) - 2x$

Answer……………………………

(b) $6p^3 \times 9mp$

Answer……………………………

(c) $24z^6 \div 3z^3$

Answer……………………………

(d) $5x - 6(2 - 3x)$

Answer……………………………

11. Factorise completely

(a) $2x^2 - 5xy$

Answer……………………………

(b) $15xy + 18yz$

Answer……………………………

12. It is estimated that it took 4000 men 30 years to build the largest pyramid in Egypt.

    (a)   How long would it have taken to build with 2000 men?

                        Answer……………………………

    (b)   How many pyramids could be built by 2000 men in 120 years?

                        Answer……………………………

    (c)   How many men would have been needed to build the pyramid in 5 years?

                        Answer……………………………

13. Find as a percentage how much larger £15 is than £12.

                        Answer……………………………

14. Twenty DVDs cost £390.0. An additional special edition DVD costs £30.00. What is the difference between the original mean, and the new mean cost per DVD.

Answer……………………………

2011/4th B
Oundle School

Your name:

Examination for Entrance to the Fourth Form   Section B
Mathematics   30 minutes

*Write ALL of your working on this paper. No other paper may be used. The answers alone **are of no use**. Show enough working on each question to make it clear how you reached your answer.*

You MAY use a calculator for this section *CALCULATORS ALLOWED*

---

1.   £1 can be exchanged for 0.87 Euros. How many pounds can be exchanged for 429 Euros? Give your answer to 2 decimal places.

Answer…………………………..

---

2.   Use your calculator to find the value of $\sqrt{17.39 - 2.4^3} + \frac{7.21}{8.4}$
      Write down all of the figures on your calculator display in the space below, then give your answer to 3 significant figures.

Answer……………………………

3. Solve the following equations

(a) $\frac{4x^2}{3} - 18 = 2.7$

Answer $x =$ ....(to 3 sfs)

(b) $-4.8x + 2(x - 1) = 7.4$

Answer $x =$ ....(to 3sfs)

4. Decrease 29 kg by 14.5%

Answer..............................

5. In the following triangles find the values of x, y and z. Give your answers to 3 sfs.

(a)
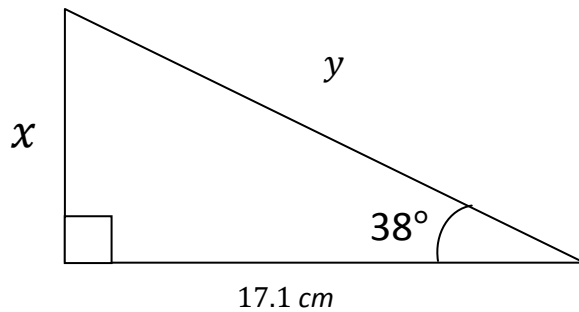
Answer: $x =$……………… $y =$………………

(b)
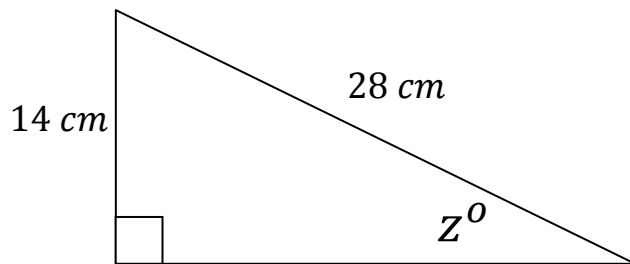
Answer $z =$……………………………

6. If $a = -5, b = 3$ and $c = 4$ calculate

(a) $\frac{(2a+b)}{c}$

Answer……………………………

(b) $\sqrt{b^2 - 4ac}$

Answer…………………….(3sf)

7. What is the smallest whole number that 36 and 45 will both divide into exactly?

Answer……………………………

8. After a long diet, Mr Large had lost 20% of his original weight, and now weighed 95.2kg. How much did he weigh before the diet?

Answer……………………………

9. a) What is the mean of the numbers below:

7.2   8.7   2.9   5.4   9.1

Answer……………………

b) Find five numbers that have a mean of 12, a median of 13 and a mode of 14.

Answer…………………

10. Find the missing numbers

   ………………× 2000000 = 56000

   ………………÷ $\dfrac{1}{5}$ = 150

11. I walk along a road at a constant speed of 4.2 km per hour for three hours and then along another road at 3.2 km per hour for 15 minutes. Calculate how far I have walked in total.

   Answer……………………………

12. 747 is a palindromic number, as it reads the same from left to right as it does from right to left. How many palindromic numbers are there between 500 and 1000 inclusive?