Name:	**Student number:**

Core Maths – Test 1 – Version A **Total Marks = 20**

You may use a calculator but you must show your method. Answer **All** questions.
You must make sure the work you present is yours and is not copied from somewhere else.

1. Write 0.05214 to

(i) 3 decimal places
(ii) 2 significant figures

(i) 0.052 A1

(ii) 0.052 A1

2. Perform the following calculation.

$$\frac{1}{2}+2\frac{1}{3}-\frac{1}{4}$$

$$\frac{1}{2}+\frac{7}{3}-\frac{1}{4}$$ M1

$$\frac{6+28-3}{12}=\frac{31}{12}=2\frac{7}{12}$$ A1

must show a method

3. Calculate the simple interest earned if £4,000 is invested at 2.4% per year for 4 years. Show your method.

$$I=\frac{4000\times 2.4\times 4}{100}$$ M1

$$=£384$$ A1

Allow missing £ sign

4. Calculate the compound interest earned if £6,000 is invested at 3% per year for 5 years.
Show your method.

$A = 6000 \times 1.03^5$

M1 for using 1.03 or equivalent

$= £6955.64$

A1 for £6955.64

$I = £6955.64 - £6000$

A1

$= £955.64$

Allow missing £ signs

5. If 1 dollar = £0.92 how many dollars is £35 worth? Show your method.

$$£35 = \frac{35}{0.92}$$

$$=38.04 \text{ euros}$$

A1 but must show working

Allow missing units

6. Transpose this formula to make n the subject

$$P = \frac{x}{d+n}$$

$$P(d+n) = x \quad \text{M1}$$

Then either

$$n = \frac{x}{P} - d$$

Or A1

$$n = \frac{x - Pd}{P}$$

7. Factorize the expression

$$2x^2 + 11x + 5$$

$$2x^2 + 10x + x + 5 \quad \text{M1}$$

$$(2x^2 + 10x) + (x + 5)$$

$$2x(x+5) + 1(x+5)$$

$$(2x+1)(x+5) \quad \text{A1}$$

8. If the cost C of producing n items is given by the formula $C = 800 + 28n$ find the cost of producing 200 items.

$$C = 800 + 28(200)$$

$$= 6400 \quad \text{A1}$$

9. Expand and simplify

$$5(4 + 3x) - 3(4 - 2x)$$

$$= 20 + 15x - 12 + 6x \quad \text{M1}$$

$$= 8 + 21x \quad \text{M1}$$

10. Write $\frac{1}{a \times a \times a}$ in the form a^n

$$= a^{-3} \quad \text{A1}$$

11. Write $\frac{3}{x^2} \times 4x^5$ in index form.

$$3x^{-2} \times 4x^5 \quad \text{M1}$$

$$= 12x^{-2+5}$$

$$= 12x^3 \quad \text{A1}$$