SMART EXAM RESOURCES

0580 EXTENDED MATH

TOPIC: NUMBERS

SUB-TOPIC: THE FOUR OPERATIONS

[BODMAS] SET-2-QP-MS

1 **Without using a calculator**, work out $\frac{2}{3}+\frac{1}{4}\times\frac{2}{3}$.

Write down all the steps of your working and give your answer as a fraction in its simplest form.

..... [4]

MARK SCHEME:

	$\frac{2}{12}$ oe or $\frac{1}{2}\times\frac{1}{3}$	$\frac{2}{3}\left(1+\frac{1}{4}\right)$	**M1**	**M1** for correct first step to deal with multiplication
	$\frac{8}{12}[+]\frac{2}{12}$ oe	$\frac{2}{3}\times\frac{5}{4}$	**M1**	**M1** for correct working for common denominator with *their* $\frac{2}{12}$ oe or correct evaluation of bracket
	$\frac{5}{6}$ cao		**A2**	**A1** for $\frac{10}{12}$ oe

2 Solve the equation $5(x + 3\times10^6) = 4\times10^7$.

Answer(b) $x =$ ..... [2]

MARK SCHEME:

5 000 000 or 5×10^6 or 5 million	2	**M1** $0.8 \times 10^7 - 3 \times 10^6$ oe or **M1** $5x = 4 \times 10^7 - 15 \times 10^6$ oe If m is used for a million it must be used consistently

3 Solve the equation $5(x + 3\times10^6) = 4\times10^7$.

Answer(b) $x =$ ..... [2]

MARK SCHEME:

5 000 000 or 5×10^6 or 5 million	2	**M1** $0.8 \times 10^7 - 3 \times 10^6$ oe or **M1** $5x = 4 \times 10^7 - 15 \times 10^6$ oe If m is used for a million it must be used consistently

4 Solve the equation $4x + 6 \times 10^3 = 8 \times 10^4$.

Give your answer in standard form.

Answer $x =$ ..... [3]

MARK SCHEME:

	1.85×10^4	**3**	**B2** 18500 oe seen or **M1** $4x = 74000$ or $x = 2 \times 10^4 - 1.5 \times 10^3$

5 Calculate $7.85 \div (2.366 \times 10^2)$, giving your answer in standard form.

Answer(b) ..... [2]

MARK SCHEME:

3.32×10^{-2}	**2**	**B1** for 0.0332 seen or 3.3×10^{-2} as answer or **B1** for 3.32×10^{k}

6 Calculate $(4.3 \times 10^8) + (2.5 \times 10^7)$.

Give your answer in standard form.

Answer ..... [2]

MARK SCHEME:

	4.55×10^8	**2**	**B1** for figs 455 seen

7 Calculate, giving your answers in standard form,

(a) $2 \times (5.5 \times 10^4)$,

Answer(a) ..... [2]

(b) $(5.5 \times 10^4) - (5 \times 10^4)$.

Answer(b) ..... [2]

MARK SCHEME:

(a)	1.1×10^5	**2**	**B1** for 110 000 oe e.g. 11×10^4
(b)	5×10^3	**2**	**B1** for 5000 oe e.g. 0.5×10^4

8 Without using your calculator, work out $\frac{5}{6} - \left(\frac{1}{2} \times 1\frac{1}{2}\right)$.

Write down all the steps of your working.

Answer ..... [3]

MARK SCHEME:

		$\left[\frac{1}{2} \times 1\frac{1}{2} = \right]\frac{3}{4}$ oe	**B1**	
		$\frac{5\times2}{6\times2}$ and $\frac{3\times3}{4\times3}$ oe or better	**M1FT**	
		$\frac{1}{12}$ oe **working must be shown**	**A1**	

9 Solve.

$5(w + 4 \times 10^3) = 6 \times 10^4$

Answer $w =$ ..... [2]

MARK SCHEME:

	8×10^3 or 8000 nfww	**2**	**M1** for $w + 4 \times 10^3 = 1.2 \times 10^4$ oe or $5w + 20 \times 10^3 = 6 \times 10^4$ oe

10 Work out $\dfrac{2+12}{4+3\times 8}$.

Answer ..... [1]

MARK SCHEME:

0.5 or $\frac{1}{2}$ c.a.o.	1	

11 Write each number correct to 1 significant figure and estimate the value of the calculation.
You must show your working.

$$2.65 \times 4.1758 + 7.917$$

Answer ..... [2]

MARK SCHEME:

	20 (but **3, 4 and 8 must be seen www)**	2	**M1** 3, 4 and 8 seen www