Revision F3 (All topics) A [42] MARKSCHEME

1.

4×5 or 4×6 or $\frac{1}{2} \times 1 \times 4$ or   M1

$\frac{1}{2} \times 4 \times 6$ or $\frac{1}{2} \times 4 \times 5$ or

$\frac{1}{2}(5 + 6) \times 4$

$4 \times 5 + \frac{1}{2} \times 4 \times 1$ or   DM1

$4 \times 6 - \frac{1}{2} \times 4 \times 1$ or

$\frac{1}{2} \times 4 \times 6 + \frac{1}{2} \times 4 \times 5$ or

2×11 or 5.5×4

> or   *their 20 + their 2*
> or   *their 24 – their 2 or $\frac{1}{2} \times$ their(20 + 24)*
> or   *their 12 + their 10*

22   A1

> *SC1 for 22 with no working*

m^2 B1

> *units mark*

         [4]

2.

(a) $xy = 5 + x$ M1

     $x(y - 1) = 5$ M1

     $x = 5/(y - 1)$ A1

(b) $9x^4y^8$ B2

> or $?x^4y^8$ *B1*
> or $9x^?y^8$ *B1*
> or $9x^4y^?$ *B1*

         [5]

3.

Angle bisector to $\pm 2°$ B1

> *See overlay.*
> *Just points plotted is B0*

Circles of arcs 4cm and 7cm from A to $\pm$ 2mm   B1

> *See overlay.*
> *Accept crosses on their angle bisector*

Correct line segment indicated   B1

         [3]

4.

a		$y(y + 27)$	B1
b		t^6	B1
c		w^5	B1

5.

(a) $360 \div 10$ M1

       36   A1

(b) $180 - 36$
       Or $180 -$ their x
       Or exterior angle $= 36$ M1
                 Note: 36 on its own scores M0

       144   A1 ft

                                                                                                    [4]

6.

Fully correct explanation, finding gradients of both lines and showing that the gradients' product equals ⁻1	**4** 1 AO1.3a 2 AO2.2 1 AO2.4b	**B1** for gradient of first line is $\dfrac{4}{3}$ **B1** for gradient of second line is $\dfrac{-3}{4}$ **M1** for finding the product of *their* gradients **oe**

7.

8112	M1 for complete method, eg. 7500×1.04^2 A1 cao

8.

$5\sqrt{2}\;(-\sqrt{2} = 4\sqrt{2})$ B1
              If attempts to square the bracket
              $\sqrt{2500} \pm \sqrt{50}\sqrt{2} \pm \sqrt{50}\sqrt{2} \pm \sqrt{4}$ *M1*

32   B1
                                              32   A1

                                                                                                    [2]

9.

(a) $x = 0.5\dot{1}$
      $100x = 51.5\dot{1}$ M1
      $99x = 51$
                $\dfrac{51}{99}$

      $\dfrac{17}{33}$ A1

(b) $0.45\dot{1} = \dfrac{4}{10} + \left(\dfrac{17}{330}\right)$ M1
                Uses their (a)
                or $10x = 4.5\dot{1}$
                $1000x = 451.5\dot{1}$
                $990x = 447$
                or uses x and 100x to get $99x = 44.7$

      $\left(\dfrac{132+17}{330}\right)$ M1 dep
                For common denominator
                $\dfrac{(447)}{990}$

      $\dfrac{149}{330}$ A1

                                                                                                    [5]

10.

(a)

$$\frac{\text{their min } 12.3}{\text{their max } 15.6 - \text{their min } 7.20}$$

M1

Their min 12.3 must be > 12.2
Their max 15.6 must be < 15.7
Their min 7.20 must be > 7.19

$$\frac{12.25}{15.65 - 7.195} \quad \text{if correct}$$

Any 1 correct limit   M1

1.448846...   A1

1.45 1.449 1.4488 etc

(b) $3 \times$ their max $141 + 7 \times$ their max 150 M1

Their max 141 must be < 142
Their max 150 must be < 151

$3 \times 141.5 + 7 \times 150.5 = 1478$
if correct

Lower bound lift load $= 1475$ B1

So this load cannot be safely carried   A1

Only award if fully correct: both
1475 and 1478 seen

                                                 [6]

11.

Finding Midpoints   B1

MUST have them all: 3, 5, 7, 9, 11,
13

$\Sigma(xf) \ (= 228)$ M1

Using their "mid-points" but any errors must be consistent.
Lower interval boundary gives 198, upper interval boundary
gives 258, using 3.5, 5.5 etc gives 243

Their $\Sigma(xf) \div 30$ DM1

MUST divide by 30

7.6 (minutes)   A1cao

                                                   [4]