Revision F3 (Topics 1-7) [38] MARKSCHEME

1.

98 B1

Alternate (angles) B1

or correct combination of eg corresponding angles + adjacent angles
Do not accept Z angles

[2]

2.

$\frac{18\sqrt{2}}{2}$ M1

$9\sqrt{2}$ A1

Ignore subsequent working if not contradicting answer; $\sqrt{162}$ M1

[2]

3.

$\frac{289\times 4.13}{0.19} \approx \frac{300\times 4}{0.2}$ M1

Any 2 correct Allow 300 × 4.1 or 290 × 4

$= \frac{1200}{0.2}$ A1

$\frac{1160}{0.2}, \frac{1230}{0.2}$

= 6000 A1

SC1 6000 without working or 5800, 6150

[3]

4.

(a) 3.97×10^{-7} B1

(b) 0.75 **or** 10^{-4} seen **or** correct answer in any form B1
eg 0.000075

7.5×10^{-5} B1

SC1 Answer 7.5^{-5}

[3]

5.

(a) $160^2 + 75^2$ (25600 + 5625) M1
31225 A1
176.7..... A1
177 or 180 B1
Independent mark. Award for any value seen or implied by a calculation greater than 3sf that is rounded to 3sf or 2sf

(b) Tanθ = 160/75 M2
Sinθ = 160/their(a)
cosθ = 75/their(a)
M1 for fraction wrong way.

62.7° to 65.4° A1

[7]

6.

(a)	**Alternative method 1**		
	93 000 000 × 2π or 186 000 000π or [584 000 000 , 584 412 000]	M1	oe Allow working in millions
	365 × 24 or 8760	M1	
	their 186 000 000 π ÷ their 8760	M1	oe Allow working in millions Only allow if first M1 gained or if their circumference is 93 000 000 × π
	[6.6 × 10^4, 6.7 × 10^4]	A1	oe
	Alternative method 2		
	93 000 000 × 2π or 186 000 000π or [584 000 000, 584 412 000]	M1	oe Allow working in millions
	their 186 000 000π ÷ 365 or [1 598 904, 1 600 033]	M1	oe Allow working in millions Only allow if M1 gained or if their circumference is 93 000 000 × π their 365.25 can be 365.25 × 24 or 365.25 × 60
	their [1.6 × 10^6, 1.602 × 10^6] ÷ 24	M1	
	[6.6 × 10^4, 6.7 × 10^4]	A1	oe
(b)	The average speed would be (slightly) lower	B1	oe

7.

$x = 7$	B1	
$2y + 1 + 8 = 17$	M1	
$y = 4$	A1	
$z = 17 - 2y - -x$ or 2	Blft	
		[4]

8.

(a) $4 + 1 = 5, 40 \div 5 (= 8)$ M1

M1 if 8 or 32 seen

32 A1

(b) Percentage $= \frac{24}{40} \times 100$ M1

$= 60$ A1

[4]

9.

(a) 0.833(3…) or 0.875 and 0.9

0.166(6…) or 0.125 and 0.1 M1

Allow percentages

or fractions with denominators with prime factors of 2 and/or 5 only terminate oe

$\frac{5}{6}$ A1

Must see working

(b) Attempt at $3 \div 11$ M1

Answer attempted to 2dp,

(Accept error in 2nd dp)

0.2727(27…) A1

Minimum of 4dp or recurring notation

SC1 sight of digits 27

[4]

10.

Sight of 5250 or 5350 B1

Sight of 95 or 105 B1

Their correct combination M1

ie. $\frac{\text{Min strain}}{\text{Max crate}} \quad \frac{5250}{105}$

$= 50$ A1

Accept 49, with explanation that 50 would be right on the limit, hence 49 is the maximum

[4]