

Revision C F3 (End of Year Exam) [53] MARKSCHEME

1.

(a) $\frac{25}{100} \times 1200$ M1

or $\frac{1}{2}$ is 600 25% is $\frac{1}{2}$ of 600

= 300 A1

(b) $\frac{2}{5} \times 1200$ M1

SCI 240 SCI 720

= 480 A1

(c) $\frac{96}{1200} \times 100$ M1

= 8% A1

[6]

2.

(a) Correct substitution: $S = 2 \times 3 - 3 \times (-4)$ [M1]
 $S = 18$ [A1]

(b) Correct substitution: $24 = 2p - 18$ [M1]
 Rearranging: $42 = 2p$ [A1]
 $p = 21$ [A1]

3.

Correct solutions, e.g. $\frac{1}{4} = \frac{1}{6} + \frac{1}{12}$ $\frac{1}{5} = \frac{1}{6} + \frac{1}{30}$ $\frac{1}{6} = \frac{1}{9} + \frac{1}{18}$	3 1 A01.1 2 A03.1a	B1 for each Allow any correct example, e.g. $\frac{1}{4} = \frac{1}{5} + \frac{1}{20}$ $\frac{1}{6} = \frac{1}{7} + \frac{1}{42}$
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4.

$\frac{600 \times 5}{0.2}$ M1

600 × 5 or 580 × 5

= 3000 ÷ 0.2 M1

Division by 0.2

= 15 000 or 14 500 A1

cao

$\frac{600 \times 50}{2}$ or equivalent gets M2

[3]

5.

- (a) (i) $2\sqrt{3}$ B1
(ii) 3 B1
- (b) $5\sqrt{3}$ seen M1
or $2\sqrt{3}$
- $(5\sqrt{3} - 2\sqrt{3} =) 3\sqrt{3}$ M1
 $(5\sqrt{3} + 2\sqrt{3} =) 7\sqrt{3}$
- Cancelling $\sqrt{3}$ to get $\frac{3}{7}$ A1

[5]

6.

- (a) 24 B1
Allow embedded answers throughout this question provided they are not contradicted on the answer line
- (b) $3y = 4 + 11$ or 15 M1
5 A1
- (c) $4z + z$ or $3 - 8$ seen M1
 $5z = -5$ M1
-1 A1
- (d) $2t + 5 = 7 \times 3$ or 21 M1
or $\frac{2t}{3} + \frac{5}{3} = 7$
- $2t = 21 - 5$ or 16 M1 dep
 $\frac{2t}{3} = 7 - \frac{5}{3}$
- 8 A1

[9]

7.

- (a) 3.97×10^{-7} B1
- (b) 15000×10^8 *or correct answer in any form* B1
 1.5×10^{12} B1 ft
ft from value seen
- (c) Sight of 0.75 or 10^{-4} or correct answer in any form B1
eg 0.000075
- 7.5×10^{-5} B1
SC1 Answer 7.5^{-5}

[5]

8.

- (a) $0.5 \times (4 + 10) \times 4$ M1
oe
- 28 A1
- (b) $15 \times (\text{their } 28)$ M1
 $(\text{their } 420) \div 100$ M1 dep
 4.2 A1 ft
ft $0.15 \times (\text{their } 28)$

[5]

9.

Alternative method 1		
$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
$\angle ABC = \angle PCB = \text{their } 75$ and $\angle BCD = 180 - \text{their } 75$ or 105°	M1	oe Angle may be seen on diagram
$x = 105 - 75 = 30^\circ$	A1	Full method required
Alternative method 2		
$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
$\angle ABC = \angle PCB = \text{their } 75$ and $\angle ABP = \text{their } 75 - 15$ or 60° and $\angle BAC = 180 - 90 - \text{their } 60$	M1	oe Angles may be seen on diagram
$x = \angle BAC = 30^\circ$	A1	Full method required

Alternative method 3		
$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
$\angle ABC = \angle PCB = \text{their } 75$ and $\angle BAC = 180 - \text{their } 75 - \text{their } 75$	M1	oe Angle may be seen on diagram
$x = \angle BAC = 30^\circ$	A1	Full method required

10.

(a)	"Sides =" 33, 56, 65 $33^2 + 56^2 = 4225$ $\sqrt{4225} = 65$	3 1 AO1.3a 1 AO2.4a 1 AO3.1a	B1 for 56 and 65 seen M1 for $33^2 + 56^2$	<u>Alternative method</u> M1 for $(x + 23)^2 + x^2 = (2x - 1)^2$ M1 for $x^2 - 25x - 264 = 0$ or equivalent quadratic = 0 A1 for $x = 33$ [and $x \neq -8$]
(b)	$2x - 1 = x + 23$ $x = 24$ $2x - 1 = x$ $x = 1$ which does not give a triangle $x = x + 23$ which has no solution	M1 B1 M1 A1 M1 A1 1 AO1.3a 3 AO3.1a 2 AO3.4b		Could be in any order $x = 1$ must be rejected Needs to be explained