

## Revision A F3 (End of Year Exam) [45] MARKSCHEME

1.

**NB In all parts of this question. Penalise any further work (by 1 Accuracy mark) which contradicts a correct answer seen.**

(i)  $s^3 + 6s$  B2

*B1 each term (-1eeoo). Must see two terms*

(ii)  $4x - 8 + 3x + 6$  M1

*Allow one error for M1*

$7x - 2$  A1

(iii)  $n^2 + 3n + 3n + 9$  M1

*Must have a term in n for M1. Allow one error for M1*

$n^2 + 6n + 9$  A1

[6]

2.

$120\% \rightarrow 600$  B1

*1.2*

$600 \div 120 \times 100$  M1

*600 \div 1.2*

500 A1

[3]

3.

$3x = 8y - 3 - 2y (= 6y - 3)$  M1

*Method mark is for isolating the x term. Allow 1 error for M1.*

$(x =) \frac{6y - 3}{3}$  A1 ft

*ft their equation if M1 awarded Allow  $(6y - 3) \div 3$  for A1 but not  $6y - 3 \div 3$  unless recovered.*

$(x =) 2y - 1$  A1

*No ft NB  $\frac{2y - 1}{1}$  is not simplified*

[3]

4.

(a)  $c^4$  B1

(b)  $d^5$  B1

(c)  $\frac{1}{e^7}$  or  $e^{-7}$  B1

(d)  $f^6$  B1

(e)  $6g^5 h^5$  B2

*B1 for two of 6,  $g^5$ ,  $h^5$  correct*

[6]

5.

- (a)  $540 \div 5$  M1  
*External angle  $360 / 5$  (or 72 seen)*
- (b) 108 A1  
 $(180 - \text{their } 108) \div 2$  M1  
*108-72 or 180-72-72*
- 36 A1

[4]

6.

(a)	Any two correct factors from 9, 18, 21, 22, 33, 42, 49, 63, 98, 99, 154, 198, 231, 294, 441, 462, 539 and 1078	<b>2</b> 1 AO2.1a 1 AO3.1a	B1 for one correct	
(b)	42	<b>3</b> 1 AO1.1 2 AO1.3b	M2 for factors 2, 3, 5, 7 or $2 \times 3 \times 7$ Or M1 for at least three correct prime factors of 210	
(c)	Any correct reason	<b>1</b> 1 AO2.4a		e.g. 5 is a factor of 45 but not of 9702 e.g. multiples of 45 end in 0 or 5 e.g. $9702 \div 45$ is not an integer

7.

$y = 2x + 1$	M1 for a method to find the gradient M1 for a method to find the c in $y = mx + c$ A1 $y = 2x + 1$ oe in this format
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8.

- Car A 10% decrease for at least 2 values M1  
 9000, 8100, 7290, 6561, 5904.90, 5314.41 A1  
*Allow rounding to nearest £  
 (£5905, £5315)  
 Must be accurate for as many values  
 as needed to compare providing at  
 least 3 shown.*
- Car B 9200, 8400, 7600, 6800, 6000, 5200 B1  
*B1 for 9200 etc... for as many  
 correct values as needed to make a  
 comparison providing at least 3  
 (9200, 8400, 7600,...) are shown.*
- 6 weeks B1ft  
*Accept between 5 and 6 weeks.  
 Last B1 ft providing M1 awarded  
 and B1 awarded.*

[4]

9.

(a)  $19^2 - 9^2 (= 280)$  M1  
*or*  $a^2 + 9^2 = 19^2$

$\sqrt{\text{(their 280)}}$  M1 dep

16.7(33...)  
*or 17 with working (1st M1)* A1

(b) Sight of tangent M1  
*M2 for any complete method*

Angle =  $\tan^{-1}(11 \div 24)$

or  $\tan R = \frac{11}{24}$  M1 dep

$\tan^{-1} 0.458(33...)$

24.6(2...)  
A1

or 25 dep on both M1s

[6]

10.

<p>Volume of cuboid = <math>100\,000\text{ cm}^3</math>          Mass of cuboid = 270 kg          Yes, because <math>270 &lt; 300</math> kg</p>	<p><b>4</b>          1 AO1.3b          2 AO3.1d          1 AO3.3</p>	<p><b>B3</b> for 270 kg          or  <b>M1</b> for <math>100\,000\text{ cm}^3</math> OR <math>0.1\text{ m}^3</math> OR  <math>100\text{ cm} \times 50\text{ cm} \times 20\text{ cm}</math> OR  <math>1\text{ m} \times 0.5\text{ m} \times 0.2\text{ m}</math>  <b>M1</b> for <math>2.7 \times \text{their '100\,000'}</math> OR  <math>2700\,000 \times \text{their '0.1'}</math></p>
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