For Edexcel

GCSE Mathematics

Unit 3 – Section A – (Non-Calculator)

Higher Tier

Paper A

Marking Guide

Method marks (M) are awarded for knowing and using a correct method.

Accuracy marks (A) are awarded for correct answers, having used a correct method.

(B) marks are independent of method marks.

Written by Shaun Armstrong

Higher Tier Unit 3 Paper A Marking Guide

Section A

1. (a) $= 2 \times 320 = 640$ g — M1 A1

(b) $= \frac{4}{6} \times 30 = 20$ g — M1 A1 — Total 4

---

2. (a) $= \frac{15}{100} = 0.15$ — M1 A1

(b) $63 \div 9 = 7$ — M1
$4 \times 7 = 28$ — A1 — Total 4

---

3. $4p + 9 = -3$ — M1
$4p = -12$ — M1
$p = -3$ — A1 — Total 3

---

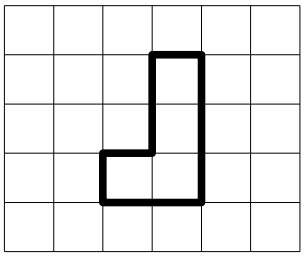
4. B3

πab	$\frac{a^2c^2}{d}$	$2\pi b^3$	$abc + d$	$\frac{2d}{b^4}$	$b(c^2 + d^2)$	$c^3 + 2ab$
	✓	✓			✓	

Total 3

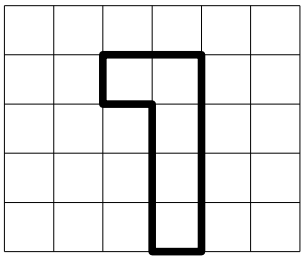
---

5. (a)



B2

(b)



B2 — Total 4

---

6. (a) $= (6 \times 3) + (5 \times -2) = 18 - 10 = 8$ — M1 A1

(b) $= a^2 - 16$ — M1 A1 — Total 4

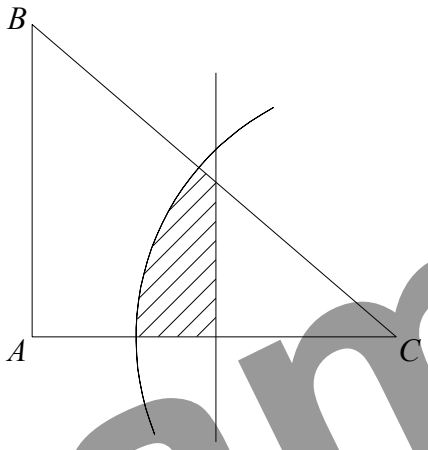
---

7. radius/side length $= 9 \div 3 = 3$ — B1
area of 2 squares $= 2 \times 3^2 = 18$ — B1
area of circle $= \pi \times 3^2 = 9\pi$ — M1
total area $= (18 + 9\pi)$ cm^2 — A1 — Total 4

---

8. $5 + 6 + 7 = 18$ M1
$36 \div 18 = 2$ M1
$6 \times 2 = 12$ A1 Total 3

9.



perpendicular bisector of AC M1
arc, centre C, radius 5 cm M1
accurate line and arc A1
correct region shaded A1 Total 4

---

10. $= \frac{21}{5} - \frac{5}{3}$ M1
$= \frac{63}{15} - \frac{25}{15}$ M1
$= \frac{38}{15} = 2\frac{8}{15}$ A1 Total 3

---

11. (a) $x + x^2 + (3x - 2) = 30$ M1
$x^2 + 4x - 2 = 30$
$x^2 + 4x - 32 = 0$ A1

(b) $(x + 8)(x - 4) = 0$ M1
$x = -8$ (can't have age –8) or 4 A1
when $x = 4$, ages are 4, 16 and 10 $\therefore$ oldest is 16 years A1 Total 5

---

12. (a) B B1

(b) D B1 Total 2

---

13. $\sqrt{27} = \sqrt{9 \times 3} = 3\sqrt{3}$ M1
$\sqrt{12} = \sqrt{4 \times 3} = 2\sqrt{3}$
$\sqrt{27} + 5\sqrt{12} = 3\sqrt{3} + 10\sqrt{3} = 13\sqrt{3}$ M1 A1 Total 3

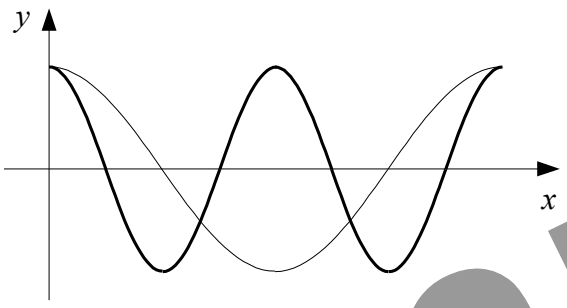
---

14. $= (x - 4)^2 - 16 + 19$ M1 A1
$= (x - 4)^2 + 3$ $a = -4$, $b = 3$ A1 Total 3

---

15. (a) (i) (90, 0) B1

(ii) (180, –1) B1

(b) 

B2

Total 4

---

16. (a) (approx) –1.45 or 2.45 B1

(b) $2x - 2x^2 = 1 \Leftrightarrow 7 + 2x - 2x^2 = 8$ M1

the curve does not intersect $y = 8$ $\therefore$ no solutions A1 Total 3

---

17. volume of cylinder = $\pi r^2 h$ B1

volume of cone = $\frac{1}{3}\pi(2r)^2 H = \frac{4}{3}\pi r^2 H$ M1

$\pi r^2 h = 2 \times \frac{4}{3}\pi r^2 H$ M1

$h = \frac{8}{3}H \ \therefore H = \frac{3}{8}h$ A1 Total 4

TOTAL FOR SECTION: 60 MARKS

