Pocket answer section for SQA Mathematics Standard Grade Credit Level 1999, 2000 and 2001

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Mathematics Credit Level 1999

1. £12 000

2. $2{\cdot}4 \times 10^5$

3. $x < \frac{2}{3}$

4. DG = 35·5 km

5. $T = \frac{1}{2}S - 2$

6. $(3x + 1)(x - 2)$

7. (*a*) £26·95

(*b*) $C = 12{\cdot}25 + 0{\cdot}35t$

8. (*a*) 3, 7, 10

(*b*) $S_6 = -4$

(*c*) $[p] + [q] + [p + q] + [p + 2q] + [2p + 3q] + [3p + 5q] = 8p + 12q$
$= 4(2p + 3q) = 4 \times 5^{th}$ term

9. 367·45 cm

10. $0{\cdot}45\ m^3$

11. 2·7 litres

12. $x = 221{\cdot}8,\ 318{\cdot}2$

13. (*a*) $2x + 3y = 580$

(*b*) $x + y = 250$

(*c*) $x = 170$

14. 9·38 m

15. (*a*) $x + x + BC + CD = 6$
$2BC = 6 - 2x$
$BC = 3 - x$

(*b*) $x(3 - x) + x(3 - x - x)$
$= 3x - x^2 + 3x - x^2 - x^2$
$= 6x - 3x^2$

(*c*) A (1) = $3m^2$

16. (*a*) $4\sqrt{2}$

(*b*) $a^{-3} + 4a^2$

(*c*) $x^3 + x^2 - 10x + 8$

17. (*a*) 32·7 m

(*b*) length of side = l
$2l^2 = (32{\cdot}7)^2$
$l = 23{\cdot}122$
$l \approx 23$ m

18. (*a*) $f(4) = 81$

(*b*) $x = 3/2$

19. (*a*) $d = kt^2$ or $\frac{d}{t^2}$ is a constant

(*b*) $d = 5t^2$

(*c*) distance is multiplied by 36

Mathematics Credit Level 2000

1. 3410

2. $2{\cdot}36 \times 10^{-2}$

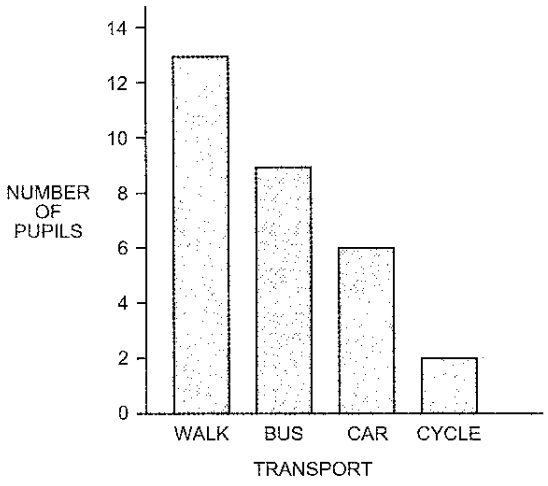
3. $V = \frac{3}{4}t + 5$

Mathematics Credit Level 2000 (cont.)

4. $a + b = y$

5. $x = 1{\cdot}2, -4{\cdot}2$

6.



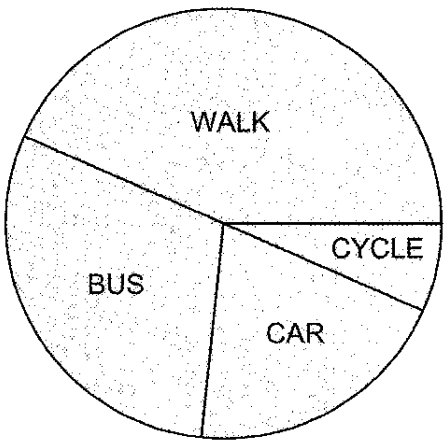
OR

Walk: $\frac{13}{30} \times 360 = 156^{C}$

Bus: $\frac{9}{30} \times 360 = 108^{O}$

Car: $\frac{6}{30} \times 360 = 72^{O}$

Cycle: $\frac{2}{30} \times 360 = 24^{O}$



7. (*a*) $l + b = 130$

(*b*) $5l + 8b = 770$

(*c*) $l = 90, b = 40$

8. $W = \frac{5}{P-4}$

9. ED = 10·2 cm

10. $d^2 \neq 22{\cdot}5^2 + 30^2$
Frame is not rectangular

11. (*a*) $7 = 4^2 - 3^2$

(*b*) $19 = 10^2 - 9^2$

(*c*) n^{th} odd number $= n^2 - (n-1)^2$
$= 2n - 1$

(*d*) n^{th} odd number $= 2n - 1$
$(n+1)^{th}$ odd number $= 2n + 1$
product $= (2n-1)(2n+1) =$
$4n^2 - 1$ which is always odd

12. $y < -1$

13. (*a*) $F = \frac{kV^2}{R}$

(*b*) 80 kilonewtons

14. 112·3 m

15. PR = 94·99 cm

16. A = 41·8, 138·18

17. (*a*) $(x+4)(x-4)$

(*b*) $\frac{5}{2x+3}$

18. Volume of space = volume of cylinder – volume of vase

$= \pi \times 6^2 \times 20 - \frac{1}{2} \times 12 \times 12 \times 20$

$= 720\pi - 1440$

Mathematics Credit Level 2000 (cont.)

19. (*a*) (90°, 1)

(*b*) T (30°, 0·5)

P (150°, 0·5)

20. (*a*) $a^{3/2} + \frac{1}{a^{1/2}}$ or $a^{3/2} + a^{-1/2}$

(*b*) $3\sqrt{2} - \sqrt{2} = 2\sqrt{2}$

21. (*a*) 1527·2 cm^2

(*b*) Minimum = 45 cm

Mathematics Credit Level—Paper 1 (Non-calculator) 2001

1. 13·5

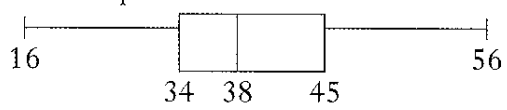
2. $8\frac{7}{24}$

3. $f(-5) = (-5)^2 - 3(-5)$
$= 40$

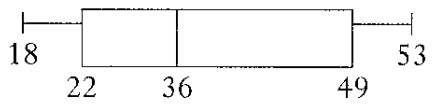
4. $x = 3$

5. (*a*)

Timberplan



Allwoods



(*b*) **Timberplan**
Smaller Interquartile Range (or equivalent)

6. gradient $= \frac{\text{distance up}}{\text{distance along}}$

$= \frac{t-a}{t^2-a^2}$

$= \frac{1}{t+a}$

7. (*a*) $\frac{310}{600}$ or equivalent

(*b*) 70

8. (*a*) A (0,–3)

(*b*) B$(-\frac{3}{2},0)$ C$(\frac{1}{2},0)$

(*c*) – 4

9. (*a*) $(7 + 1)(7^2 - 7 + 1)$

(*b*) $(n + 1)(n^2 - n + 1)$

(*c*) $(2p + 1)(4p^2 - 2p + 1)$

10. $\frac{\sqrt{72}}{24}$ or $\frac{6\sqrt{2}}{24}$ or $\frac{\sqrt{2}}{4}$

11. (*a*) $I = \frac{20}{8}$

(*b*) $c = 1$

(*c*) 2^c is a Minimum
$2^c = 1$
$I = 20$

Mathematics Credit Level—Paper 2 2001

1. $5{\cdot}256 \times 10^9$

2. (*a*) Mean = 84·3
Standard deviation = 1·28

(*b*) Rural prices are higher on average, and
Rural prices have a greater spread