2.2 Using a Calculator: 2-hour Pack

EDEXCEL 1MA1 · Calculator allowed · about 120 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Use your calculator to work out the value of (3 + 9.3) / (2.9 - 9.2). Write down all the figures on your calculator display, then give your answer correct to 3 significant figures.

(Total for Question 1 is 2 marks)

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2 Work out 7.6 x $\sqrt{30}$. Give your answer correct to 3 significant figures.

(Total for Question 2 is 2 marks)

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3 At 6 am the temperature in Aoife's garden was -4.5°C. By noon the temperature had risen by 9.8°C. Work out the temperature at noon.

(Total for Question 3 is 2 marks)

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4 Work out (cube root of 56) + 8.5. Give your answer correct to 3 significant figures.

(Total for Question 4 is 2 marks)

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5 Work out 1/8.7 + 1/4. Give your answer correct to 3 significant figures.

(Total for Question 5 is 2 marks)

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6 Work out the value of $\sqrt[3]{216} - 2^3$

(Total for Question 6 is 2 marks)

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7 Work out the value of 1/0.25 + 1/0.5

(Total for Question 7 is 2 marks)

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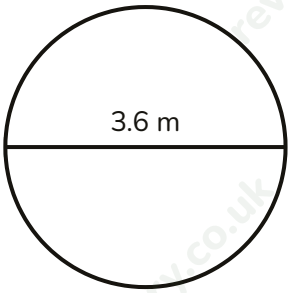
8 Work out (7.2 + 3.8) x (9.6 - 4.6)

(Total for Question 8 is 3 marks)

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9 A circular pond has diameter 3.6 m. Work out the circumference of the pond. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn



(Total for Question 9 is 2 marks)

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10 The exchange rate is £1 = 1.17 euros. Zara changes £250 into euros. Work out how many euros she receives.

(Total for Question 10 is 2 marks)

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11 A car travels at an average speed of 56 mph for 2.25 hours.

(a) Work out the distance travelled. **(2)**

.....

(b) The car uses fuel costing 14p per mile. Work out the total fuel cost for the journey. Give your answer in pounds. **(2)**

.....

(Total for Question 11 is 4 marks)

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12 The table shows the number of pupils in four tutor groups.

Tutor group	Number of pupils
7A	28
7B	31
7C	27
7D	30

Work out the mean number of pupils per tutor group.

(Total for Question 12 is 2 marks)

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13 A cyclist rides 45 km in 1 hour 30 minutes. Work out her average speed in km/h.

(Total for Question 13 is 3 marks)

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14 A taxi company charges a fixed pickup fee of £3.50, plus £1.85 for each mile travelled. Grace's taxi journey is 6.4 miles. Work out the total cost of her journey.

(Total for Question 14 is 3 marks)

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15 Work out the value of $\sqrt{90.25} \ / \ 2^2$

(Total for Question 15 is 3 marks)

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16 Work out the value of $2.7^3 - 1.8^3$

(Total for Question 16 is 3 marks)

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17 Jamal's bank balance is -£18.50. He spends another £6.75 using his card. Work out his new balance.

(Total for Question 17 is 2 marks)

---

18 A laptop costs £480. In a sale the price is reduced by 15%. Work out the sale price.

(Total for Question 18 is 2 marks)

---

19 Work out $\sqrt{81} + 2^3$.

(Total for Question 19 is 2 marks)

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20 Yusuf uses his calculator memory. He calculates 12.5×8 and stores the answer in memory. He then recalls the memory and adds 47. Work out the final result.

(Total for Question 20 is 2 marks)

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21 Work out (3/4) ÷ (1/8).

(Total for Question 21 is 2 marks)

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22 Work out (15 - 3) ÷ (2 + 1).

(Total for Question 22 is 2 marks)

---

23 Work out $\sqrt{225}$ + cube root(64).

(Total for Question 23 is 2 marks)

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24 Four students each carry out a calculation on their calculator. Work out the result of each calculation.

(a) Priya stores 18.5 in her calculator's memory using M+, then recalls the memory and multiplies by 4. Work out her result. **(1)**

.....

(b) Work out -3 x (5 - 9). **(1)**

.....

(c) Work out $\sqrt{196}$ - 8. **(1)**

.....

(d) Give 7/9 as a decimal correct to 3 decimal places. **(1)**

(Total for Question 24 is 4 marks)

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25 Work out 1/0.4 + 1/8, using the reciprocal key on your calculator.

(Total for Question 25 is 2 marks)

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26 Use your calculator to work out $4.8 \times 10^5 \times 3.6 \times 10^{-2}$. Give your answer in standard form.

(Total for Question 26 is 3 marks)

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27 The temperatures, in °C, at five different times during one winter's day in Sheffield were:
-2, 3, 5, -1, 6

(a) Work out the mean temperature. **(2)**

.....

(b) Work out how many degrees warmer the highest temperature was than the mean temperature. **(2)**

.....

(Total for Question 27 is 4 marks)

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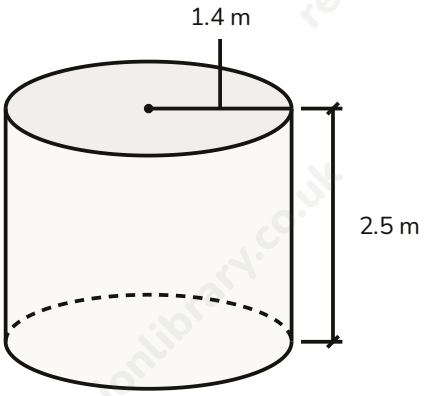
28 Work out the value of $(6.4^2 - 3.9^2)/(6.4 - 3.9)$

(Total for Question 28 is 3 marks)

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29 A cylindrical water tank has radius 1.4 m and height 2.5 m. Work out the volume of the tank. Give your answer correct to 3 significant figures.
(Volume of a cylinder = $\pi \times r^2 \times h$)

Diagram NOT accurately drawn



(Total for Question 29 is 3 marks)

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30 A car was bought for £14000. Its value decreases by 20% in the first year, then decreases by a further 15% of its new value in the second year. Work out the value of the car after 2 years.

(Total for Question 30 is 3 marks)

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31 Callum uses M+ to store three numbers: he enters 4.2, presses M+; 5.6, presses M+; 3.8, presses M+. He then recalls the memory and divides by 3 to find the average. Work out the average to 3 decimal places.

(Total for Question 31 is 2 marks)

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32 Use your calculator to work out $(2.5 \times 10^6) \times (4 \times 10^3)$. Give your answer in standard form.

(Total for Question 32 is 2 marks)

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33 Work out 4 1/3 - 1 3/4, giving your answer as a mixed number. You may use the fraction key on your calculator.

(Total for Question 33 is 3 marks)

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34 Work out 2 1/2 × 3 1/4 and give your answer as a mixed number. You may use the fraction key on a calculator.

(Total for Question 34 is 3 marks)

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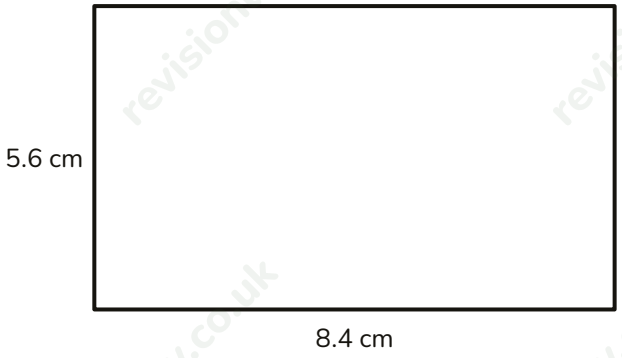
35 Work out $\sqrt{52.9}$ x 3.6, giving your answer correct to 3 significant figures.

(Total for Question 35 is 3 marks)

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36 A rectangle has been measured with length 8.4 cm and width 5.6 cm, each correct to 1 decimal place. Use your calculator to work out the upper bound for the area of the rectangle, giving your answer to 2 decimal places.

Diagram NOT accurately drawn



(Total for Question 36 is 3 marks)

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Mark scheme · 2.2 Using a Calculator: 2-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

-1.95238 or better seen	**B1**
-1.95 cao	**B1**

Answer: -1.95

Question 2

41.627 or better seen	**M1**
41.6 cao	**A1**

Answer: 41.6

Question 3

-4.5 + 9.8 seen or correct process	**M1**
5.3 cao (°C)	**A1**

Answer: 5.3°C

Question 4

12.326 or better seen	**M1**
12.3 cao	**A1**

Answer: 12.3

Question 5

0.36494 or better seen	**M1**
0.365 cao	**A1**

Answer: 0.365

Question 6

6 or 8 seen	**M1**
-2 cao	**A1**

Answer: -2

Question 7

4 or 2 seen	**M1**
6 cao	**A1**

Answer: 6

Question 8

11 (7.2 + 3.8) seen	**M1**
5 (9.6 - 4.6) seen	**M1**
55 cao	**A1**

Answer: 55

Question 9

π x 3.6 or 11.3... seen	**M1**
awrt 11.3 (m)	**A1**

Answer: 11.3 m

Question 10

250 x 1.17 seen	**M1**
292.50 cao (euros)	**A1**

Answer: 292.50 euros

Question 11

(a) 56 x 2.25 seen or correct process	**M1**
(a) 126 cao (miles)	**A1**

(a) Answer: 126 miles

(b) their (a) x 0.14 seen, ft	**M1**
(b) 17.64 cao (pounds, ft from part a)	**A1**

(b) Answer: £17.64

Question 12

28 + 31 + 27 + 30 (= 116) seen, or correct process	**M1**
29 cao	**A1**

Answer: 29

Question 13

1 hour 30 minutes converted to 1.5 hours (or 90 minutes) seen	**M1**
45 / 1.5 seen	**M1**
30 cao (km/h)	**A1**

Answer: 30 km/h

Question 14

6.4 x 1.85 (= 11.84) seen	**M1**
their 11.84 + 3.50 (or correct process 3.50 + 6.4 x 1.85), ft, seen	**M1**
15.34 cao (pounds)	**A1**

Answer: £15.34

Question 15

9.5 seen	**M1**
9.5 / 4 seen	**M1**
2.375 cao	**A1**

Answer: 2.375

Question 16

19.683 (or awrt 19.68) seen	**M1**
5.832 (or awrt 5.83) seen	**M1**
13.851 cao (or awrt 13.85)	**A1**

Answer: 13.851

Question 17

-18.50 - 6.75 seen or correct process	**M1**
-25.25 cao (pounds)	**A1**

Answer: -£25.25

Question 18

0.85 x 480, or 480 - (0.15 x 480), seen	**M1**
408 cao (pounds)	**A1**

Answer: £408

Question 19

correct method e.g. $\sqrt{81}=9$ and $2^3=8$ shown	**M1**
17 cao	**A1**

Answer: 17

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Question 20

use memory or calculate 12.5 × 8 = 100 (method shown) oe **M1**

147 cao **A1**

Answer: 147

Question 21

correct method, e.g. (3/4) × 8 or (3/4) ÷ (1/8) oe **M1**

6 cao **A1**

Answer: 6

Question 22

identify (15-3)=12 and (2+1)=3 or equivalent method **M1**

4 cao **A1**

Answer: 4

Question 23

$\sqrt{225}$ = 15, or cube root(64) = 4, seen **M1**

19 cao **A1**

Answer: 19

Question 24

(a) 74 cao **B1**

(a) Answer: 74

(b) 12 cao **B1**

(b) Answer: 12

(c) 6 cao **B1**

(c) Answer: 6

(d) 0.778 awrt 3 d.p. **B1**

(d) Answer: 0.778

Question 25

one correct reciprocal seen, e.g. 1/0.4 = 2.5 or 1/8 = 0.125 **M1**

2.625 cao **A1**

Answer: 2.625

Question 26

17.28 x 10^3 seen (or 4.8 x 3.6 = 17.28 seen) **M1**

correct conversion process to standard form **M1**

1.728 x 10^4 cao **A1**

Answer: 1.728 x 10^4

Question 27

(a) -2 + 3 + 5 + (-1) + 6 (= 11) seen, or correct process **M1**

(a) 2.2 cao (°C) **A1**

(a) Answer: 2.2°C

(b) 6 - their (a) seen, ft **M1**

(b) 3.8 cao (ft from part a) **A1**

(b) Answer: 3.8°C

Question 28

40.96 and 15.21 both seen, or 25.75 seen **M1**

2.5 (6.4 - 3.9) seen **M1**

10.3 cao **A1**

Answer: 10.3

Question 29

1.4^2 x 2.5 (= 4.9) seen **M1**

π x 4.9 seen **M1**

awrt 15.4 (m^3) **A1**

Answer: 15.4 m^3

Question 30

0.8 x 14000 (= 11200) seen **M1**

0.85 x their 11200, ft, seen **M1**

9520 cao (pounds) **A1**

Answer: £9520

Question 31

sum the numbers or show memory total 13.6 **M1**

4.533 cao (13.6/3 = 4.533333... rounded to 3 d.p.) **A1**

Answer: 4.533

Question 32

correct unrounded value 10000000000 seen (or equivalent working) **M1**

1 x 10^{10} cao (correct standard form) **A1**

Answer: 1 x 10^{10}

Question 33

convert to improper fractions or use fraction key: 13/3 - 7/4 oe **M1**

common denominator 12 used, or show calculator method to reach 31/12 **M1**

2 7/12 cao **A1**

Answer: 2 7/12

Question 34

convert to improper fractions or use fraction key: 5/2 × 13/4 oe **M1**

multiply to get 65/8 or show calculator method **M1**

8 1/8 cao **A1**

Answer: 8 1/8

Question 35

$\sqrt{52.9}$ = 7.27(3...) seen (or full unrounded calculator value) **M1**

correct unrounded product, e.g. 26.18... or 26.183... seen **M1**

26.2 awrt 3 s.f. cao **A1**

Answer: 26.2

Question 36

upper bounds identified: length 8.45 and width 5.65 **M1**

correct unrounded product 47.7425 (or awrt) seen **M1**

47.74 awrt 2 d.p. cao **A1**

Answer: 47.74 cm^2

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