2021 Assessment resources
GCSE Mathematics

Number – Common

Answers and commentaries

The question numbers in this resource reflect the question numbers from the original papers and match the question numbers in the corresponding 2021 assessment materials

Question 15

15 Which of these fractions is closer in value to 1?

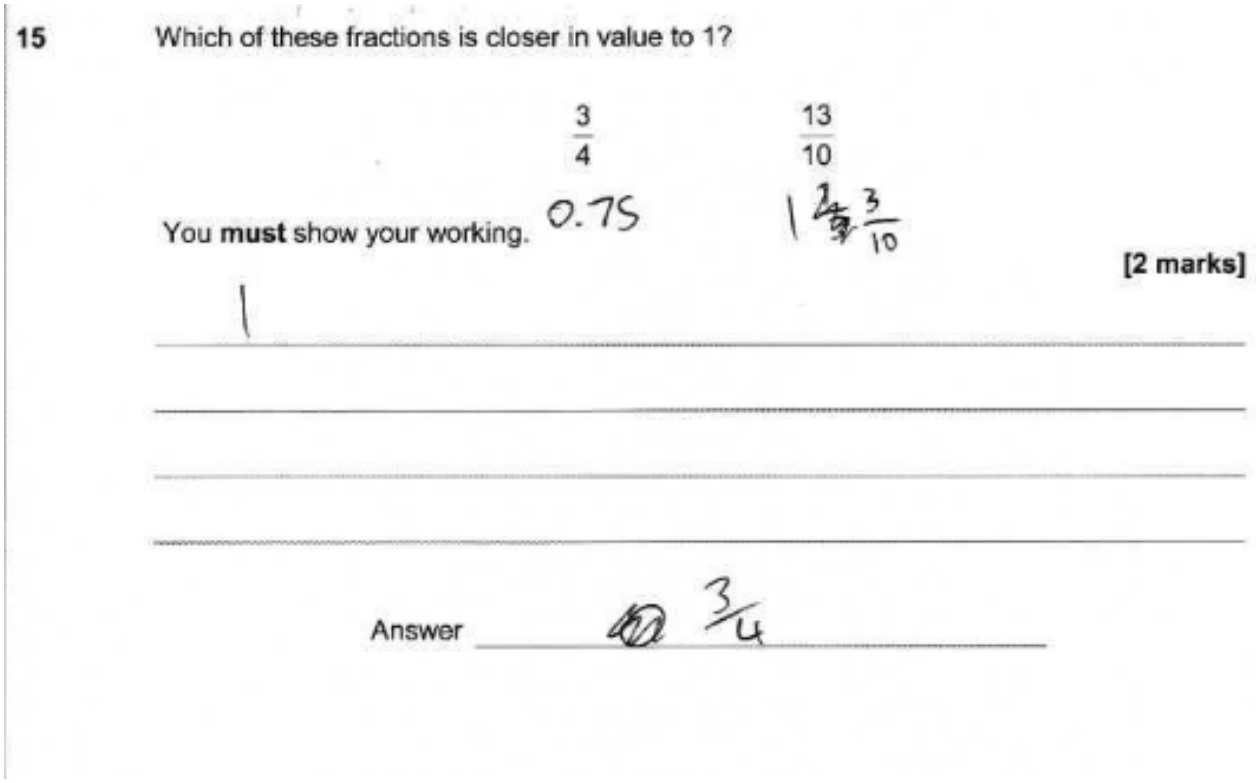
$\frac{3}{4}$ $\frac{13}{10}$

You **must** show your working.

[2 marks]

Answer _____

Student A



15 Which of these fractions is closer in value to 1?

$\frac{3}{4}$ $\frac{13}{10}$

You **must** show your working. 0.75 $1\frac{3}{10}$

[2 marks]

1

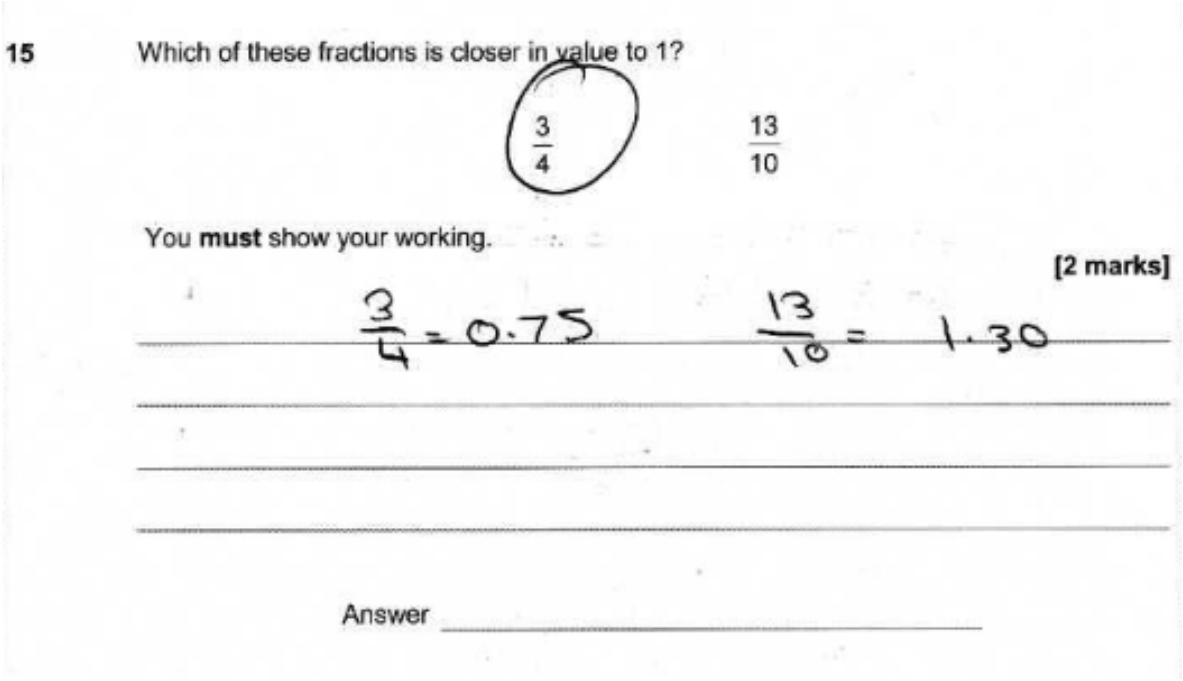
Answer 3/4

Commentary

0.75 scores M1. The conversion of the second fraction to a mixed number is completed correctly but taken with 0.75 there is not sufficient working to award the A mark.

1 mark

Student B



15 Which of these fractions is closer in value to 1?

$\frac{3}{4}$ $\frac{13}{10}$

You **must** show your working.

[2 marks]

$\frac{3}{4} = 0.75$ $\frac{13}{10} = 1.30$

Answer _____

Commentary

The two decimal values are correct and the decision is made by circling and is not contradicted on the answer line.

2 marks

Question 14

14 (a) Use your calculator to work out $9.95^2 \times 29.8$

Give your answer as a decimal.

Write down your full calculator display.

[1 mark]

Answer _____

14 (b) Is your answer to part (a) sensible?

Use approximations to decide.

You **must** show your working.

[3 marks]

Tick a box.

☐ Sensible ☐ Not sensible

Student A

14 (a) Use your calculator to work out $9.95^2 \times 29.8$

Give your answer as a decimal.

Write down your full calculator display.

[1 mark]

2950.2745 B 1

Answer 2950.3

14 (b) Is your answer to part (a) sensible?

Use approximations to decide.

You **must** show your working.

[3 marks]

2950.2745

higher than 5 so you round up to the nearest hundred. M 0

Mdep 0

Tick a box. A 0

☑ Sensible ☐ Not sensible

Commentary

Part (a) 3rd line of Additional Guidance allows the mark here

(a) 1 mark

Part (b) No relevant working

(b) 0 marks

Student B

14 (a) Use your calculator to work out $9.95^2 \times 29.8$

Give your answer as a decimal.

Write down your full calculator display.

[1 mark]

$9.95^2 \times 29.8 = 2950 - 2745$

Answer 2950 - 2745 B 1

14 (b) Is your answer to part (a) sensible?

Use approximations to decide.

You **must** show your working.

[3 marks]

$100^2 \times 30 = 300000$

M 1 Mdep 0

(9.95^2 = approximately 100^2)

29.8 is approximately 30.

Tick a box. A 0

☑ Sensible ☐ Not sensible

Commentary

Part (a) Intention taken to be that the decimal point is in the correct position.

(a) 1 mark

Part (b) 30 scores the 1st M mark

(b) 1 mark

Question 15

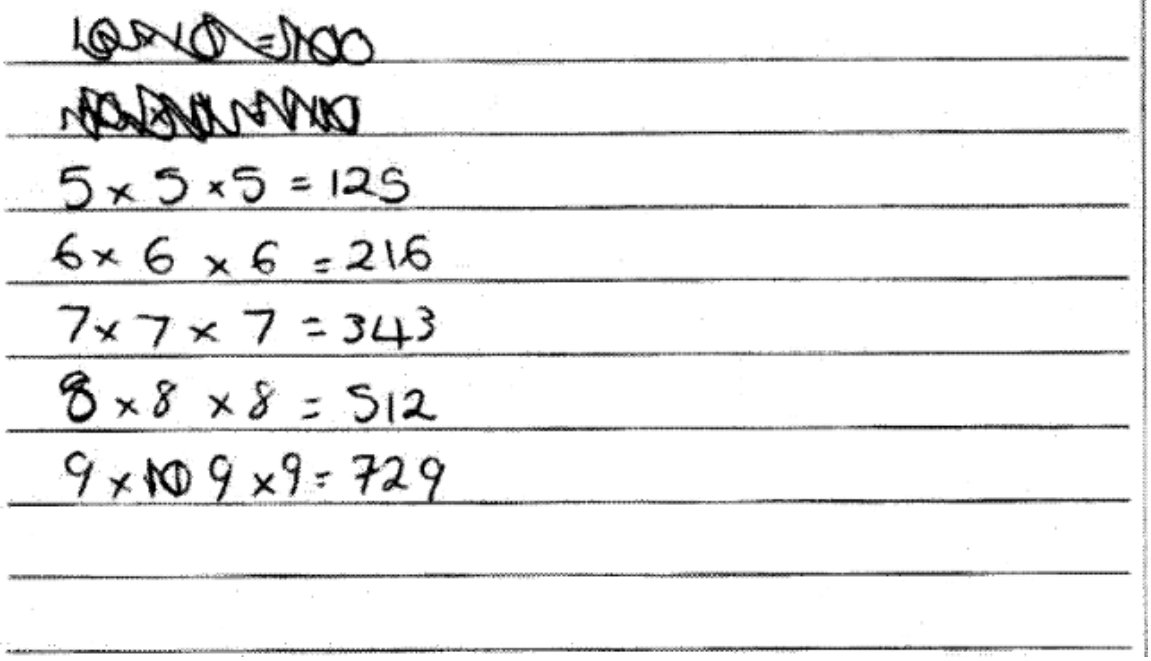
15 Show that there are **exactly** five 3-digit cube numbers.

[3 marks]

Student A

15 Show that there are **exactly** five 3-digit cube numbers.

[3 marks]



Commentary

The student has not shown that the only 3-digit cube numbers are the five shown. They needed to show 64 and 1000 as well to score 3 marks.

2 marks

Question 18

Please see the mark scheme

Question 5

No examples available

Question 20

No examples available

Question 16

16 A train has 1 first-class carriage and 6 standard carriages.

The first-class carriage has 64 seats.

$\frac{3}{8}$ are being used.

Each standard carriage has 78 seats.

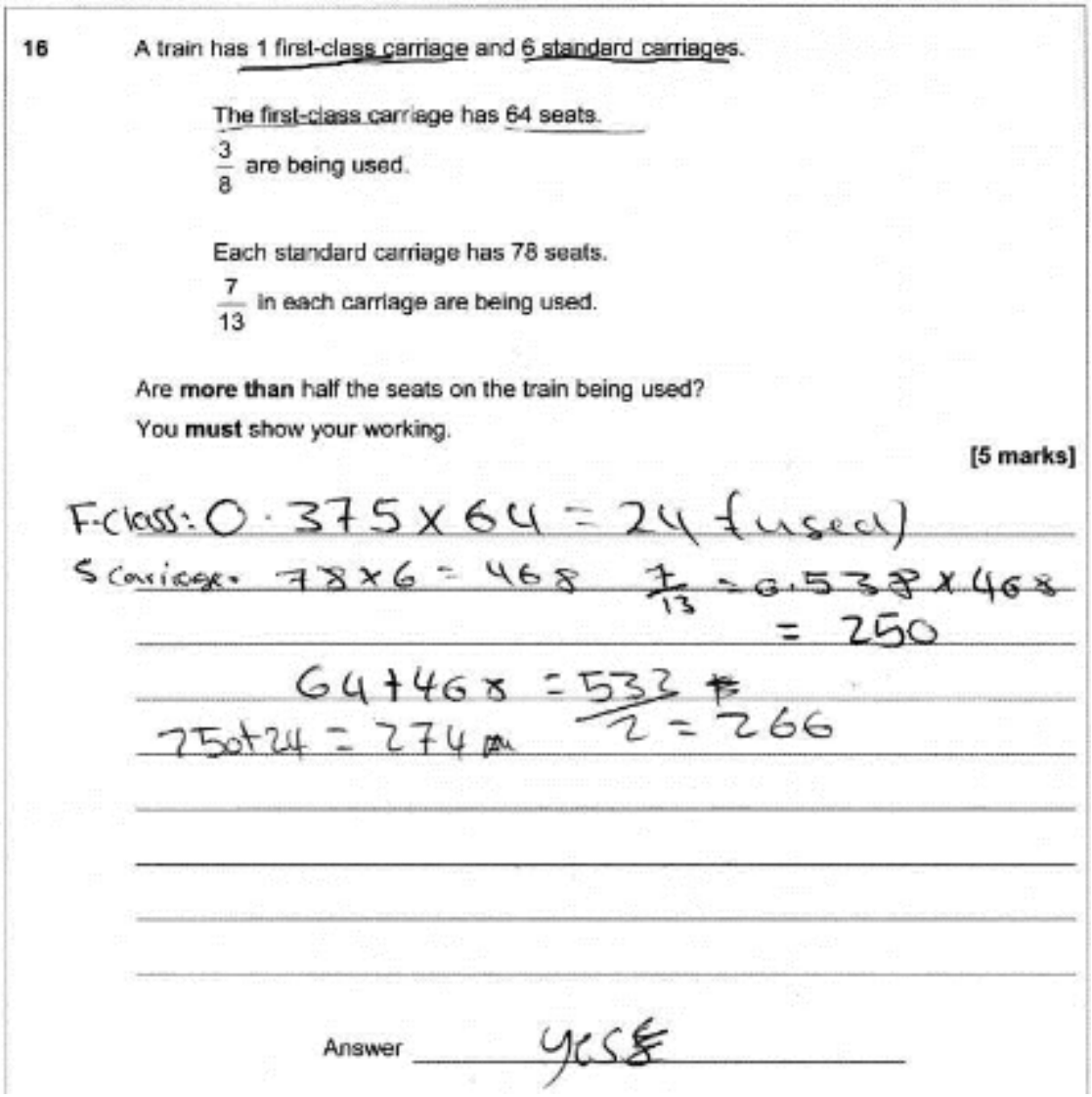
$\frac{7}{13}$ in each carriage are being used.

Are **more than** half the seats on the train being used?

You **must** show your working.

[5 marks]

Student A



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The first-class carriage has 64 seats.

$\frac{3}{8}$ are being used.

Each standard carriage has 78 seats.

$\frac{7}{13}$ in each carriage are being used.

Are **more than** half the seats on the train being used?

You **must** show your working.

[5 marks]

F-class: 0·375 x 64 = 24 (used)

S carriage: 78 x 6 = 468 $\frac{7}{13}$ = 0.538 x 468 = 250

64 + 468 = 533 ÷ 2 = 266

250 + 24 = 274

Answer yes

Commentary

0.375 is an equivalent for three-eighths.
Seven-thirteenths has been rounded but the method is clearly seen. Note the second M mark is scored at the stage where they show 250 + 24
The final mark is not scored due to the earlier rounding, but all four M marks are scored.
4 marks

Question 5

No examples available

Question 6

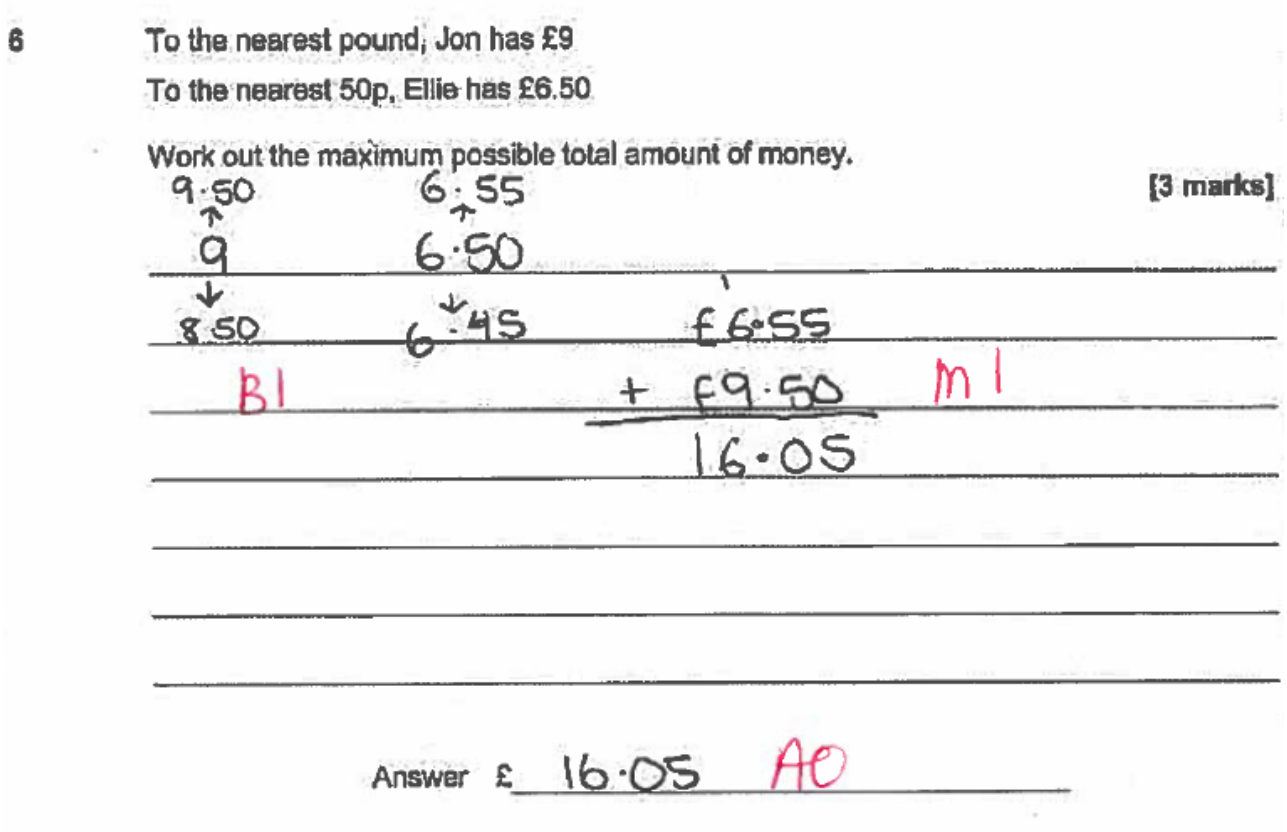
6 To the nearest pound, Jon has £9

To the nearest 50p, Ellie has £6.50

Work out the maximum possible total amount of money.

[3 marks]

Student A

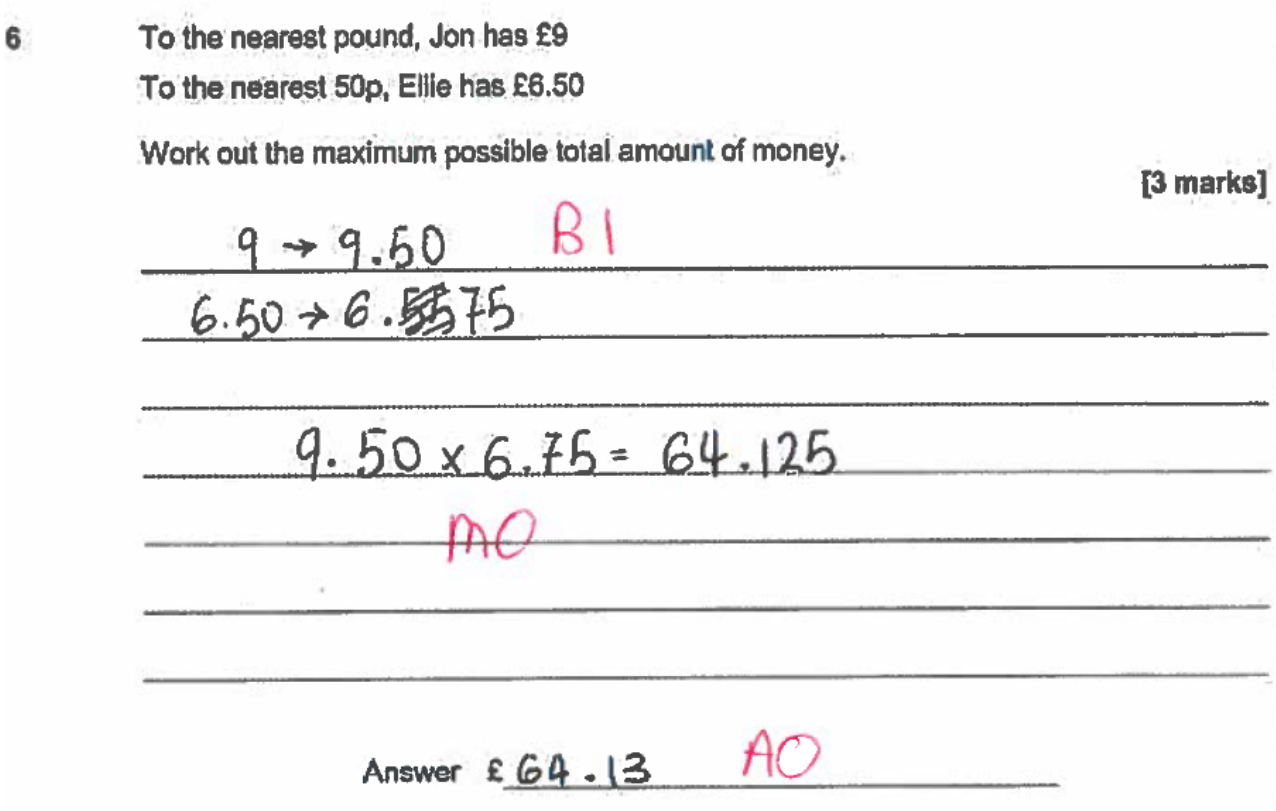


Commentary

Only one correct value is needed for the first mark and although two of them are seen this only allows 1 mark at this stage. The second mark is awarded as the two values added are in the required range. Note that (6.5, 6.75] means $6.5 < \text{value} \leqslant 6.75$

2 marks

Student B



6 To the nearest pound, Jon has £9

To the nearest 50p, Ellie has £6.50

Work out the maximum possible total amount of money.

[3 marks]

9 → 9.50 B1

6.50 → 6.5575

9.50 x 6.75 = 64.125

MO

Answer £ 64.13 AO

Commentary

B1 for 9.50 Although the two amounts are in range, the student multiplies them instead of adding.
1 mark

Question 23

23 In one hour a machine can make

600 nuts

or

720 bolts.

At 3 pm the machine starts working.

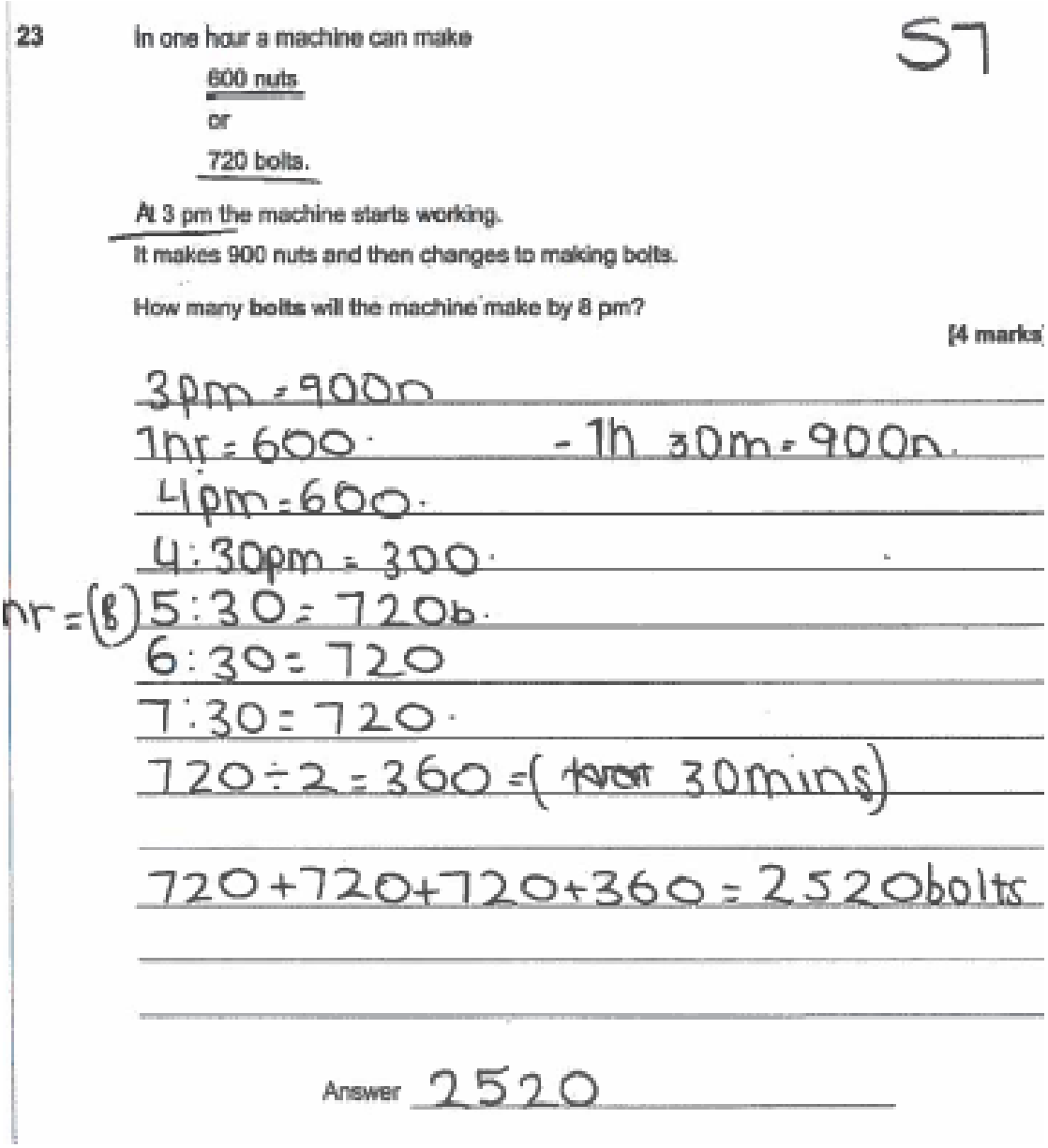
It makes 900 nuts and then changes to making bolts.

How many **bolts** will the machine make by 8 pm?

[4 marks]

Answer _____

Student A



23 In one hour a machine can make

600 nuts

or

720 bolts.

At 3 pm the machine starts working.

It makes 900 nuts and then changes to making bolts.

How many bolts will the machine make by 8 pm?

[4 marks]

S7

3pm = 900n

1hr = 600 - 1h 30m = 900n.

4pm = 600.

4:30pm = 300.

hr = (8) 5:30 = 720b.

6:30 = 720

7:30 = 720.

720 ÷ 2 = 360 = (30mins)

720 + 720 + 720 + 360 = 2520bolts

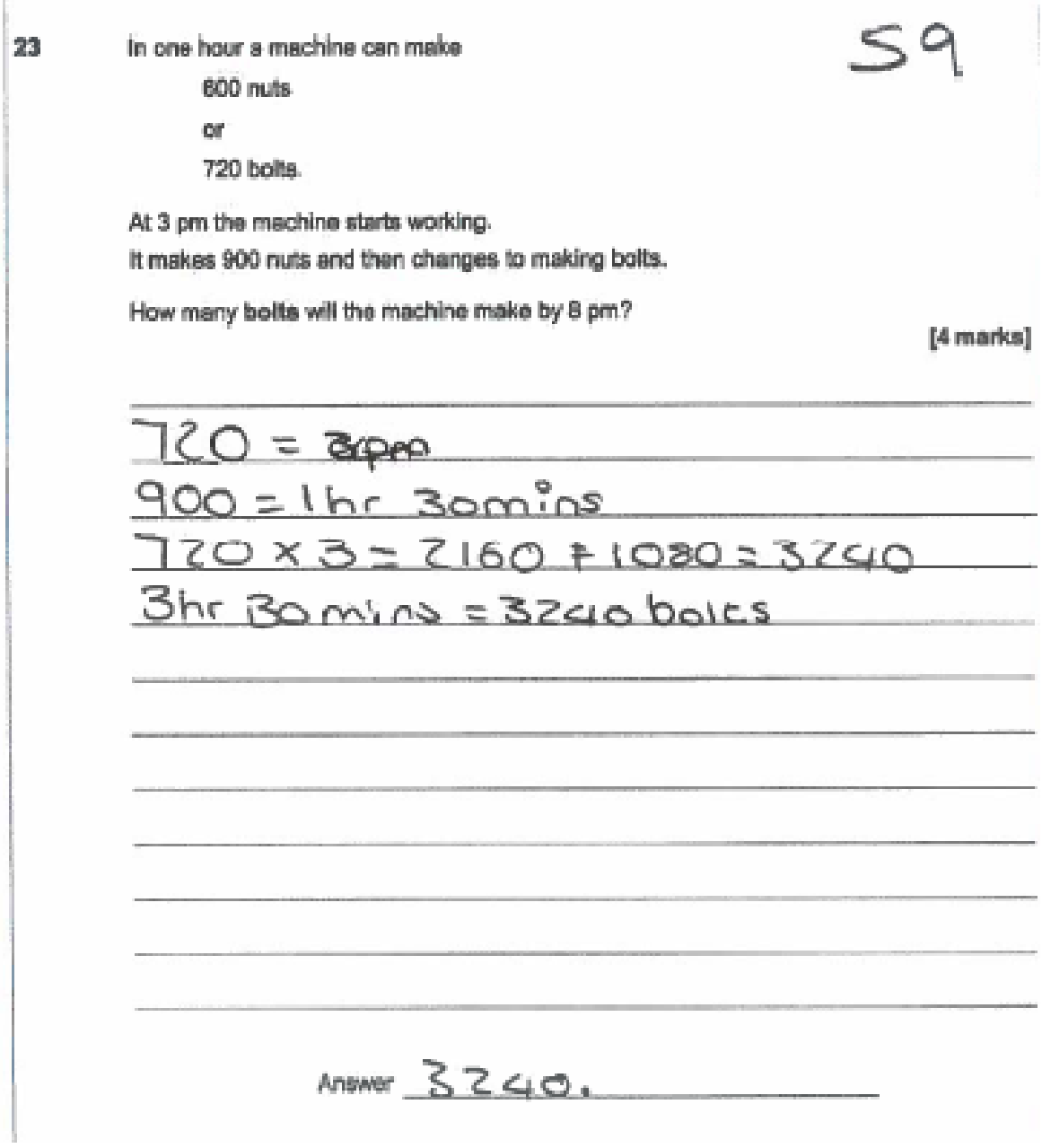
Answer 2520

Commentary

The answer is correct so it is highly unlikely that the method is incorrect. A check of the working confirms this.

4 marks

Student B



23 In one hour a machine can make

600 nuts

or

720 bolts

At 3 pm the machine starts working.

It makes 900 nuts and then changes to making bolts.

How many bolts will the machine make by 8 pm?

[4 marks]

59

720 = 3qpo

900 = 1hr 30mins

720 x 3 = 2160 + 1080 = 3240

3hr 30 mins = 3240 bolts

Answer 3240.

Commentary

1 h 30 min is equivalent to 1.5 (oe stands for or equivalent)
3 h 30 min is equivalent to 3.5
2 marks

Question 27

27 Work out $\frac{9.12 \times 10^{10}}{3.2 \times 10^{4}}$

Give your answer in standard form.

[2 marks]

Answer _____

Student A

27 Work out $\frac{9.12 \times 10^{10}}{3.2 \times 10^{4}}$

Give your answer in standard form.

[2 marks]

28500000 B 1

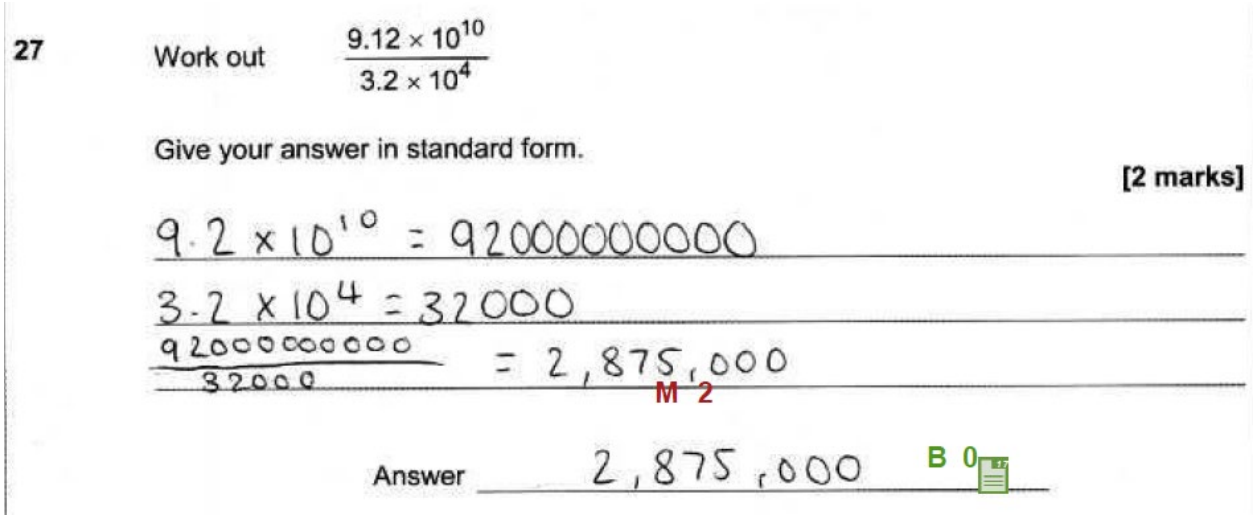
M 2

Answer 2.8×10^{6}

Commentary

B1 for the value in the working lines.
The answer line contains an answer in standard form but has been truncated.
1 mark

Student B



Commentary

Digit 7 has been included.
0 marks

Question 8

No examples available