4.1 Reasoning: Fractions, Decimals and Percentages: Test Pack

STA KS2 National Curriculum Mathematics - STA Reasoning Test Framework · Calculators not allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Circle the fraction that is equivalent to 1/2.

- [ ] A) 2/5
- [ ] B) 3/6
- [ ] C) 4/5
- [ ] D) 5/8

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2 Two pupils are discussing fractions and decimals. Priya says: "If you multiply a decimal number by 10, all the digits move one place to the left." Selin says: "3/5 is bigger than 0.65 because 3/5 has a bigger numerator than 0.65 has in its decimal digits."

(a) Explain why Priya is correct. Use an example to support your answer. **(2)**

(b) Explain why Selin is wrong. Show the correct comparison. **(2)**

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3 Write 10/20 in its simplest form.

Answer: ___

(2)

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4 What percentage of 50 is 46?

Answer: ___ %

(2)

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5 Jamal has £45. He spends 2/5 of it on a book, then spends 20% of what remains on a magazine. How much money does he have left?

(3)

---

6 Write these in order, smallest first.

65%, 0.7, 1/5

Answer: ___

(2)

---

7 Write 0.15 as a percentage.

Answer: ___ %

(2)

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8 A decimal number rounds to 7.2 when rounded to 1 decimal place. Give two different numbers it could have been.

(2)

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9 The number 3.847 is shown.

(a) Round 3.847 to 1 decimal place. **(1)**

(b) Round 3.847 to the nearest whole number. **(1)**

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10 Write <, > or = in the box.

1/3 [ ] 2/4

Answer: ___

(2)

---

11 A rubber costs £16.50 and a balloon costs £15.80. Hassan pays with a £35 note.

How much change does Hassan get?

Answer: £___

(2)

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12 Write 17/20 as a decimal.

Answer: ___

(2)

---

13 Write these decimals in order, starting with the largest.

0.878, 0.663, 0.458, 0.918

Answer: ___

(1)

---

14 Work out 1 1/2 + 3 1/2.

Give your answer in its simplest form.

Answer: ___

(2)

---

15 Calculate 15% of 60.

(2)

---

16 6/10 = ___/40

Answer: ___

(1)

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17 What percentage of 500 is 370?

Answer: ___ %

(2)

---

18 Convert 7/20 to a decimal, and then to a percentage.

(2)

---

19 Priya has 60 badges. Priya gives 2/3 of them to a friend.

How many badges does Priya give to the friend?

Answer: ___

(2)

---

20 Tick the calculation with the largest answer: 1/3 of 90, 0.4 of 60, 45% of 50

- ☐ A) 1/3 of 90
- ☐ B) 0.4 of 60
- ☐ C) 45% of 50

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21 Decrease 116 m by 10%.

Answer: ___

(2)

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22 Show that 3/8 is greater than 0.35.

(3)

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23 Which fraction is equivalent to 1/8?

A: 4/33 B: 5/32 C: 5/12 D: 4/32

Write the letter.

Answer: ___

(1)

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Mark scheme · 4.1 Reasoning: Fractions, Decimals and Percentages: Test Pack

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

Question 1

3/6 circled; cao	B1

Answer: **3/6**

Question 2

(a) correct general statement that each digit's place value multiplies by 10 (moves one column to the left)	B1
(a) correct supporting example, e.g. 4.2 x 10 = 42, showing the 4 and 2 each shift one place left	B1

(a) Answer: **Priya is correct: multiplying by 10 moves every digit one column to the left, e.g. 4.2 x 10 = 42.**

(b) converts 3/5 to a decimal: 3/5 = 0.6	M1
(b) cso; correct conclusion that 0.6 < 0.65, so 3/5 is smaller than 0.65, not bigger (Selin's reasoning about numerators is invalid)	A1

(b) Answer: **3/5 = 0.6, and 0.6 < 0.65, so 3/5 is smaller than 0.65; Selin is wrong.**

Question 3

divides numerator and denominator by a common factor	M1
1/2 cao	A1

Answer: **1/2**

Question 4

fraction as a percentage	M1
92% cao	A1

Answer: **92%**

Question 5

2/5 of 45 = £18 spent on the book, so £27 remains oe	M1
20% of 27 = £5.40 spent on the magazine, ft from a correct remaining amount	dM1
£21.60 cao	A1

Answer: **£21.60**

Question 6

converts to a common form	M1
1/5, 65%, 0.7 cao	A1

Answer: **1/5, 65%, 0.7**

Question 7

method seen	M1
15% cao	A1

Answer: **15%**

Question 8

any valid value with 7.15 ≤ x < 7.25, not equal to 7.2, e.g. 7.18	B1
a second different valid value in the same range, e.g. 7.23	B1

Answer: **Any two values in the range 7.15 ≤ x < 7.25, e.g. 7.18 and 7.23**

Question 9

(a) 3.8 cao	B1

(a) Answer: **3.8**

(b) 4 cao	B1

(b) Answer: **4**

Question 10

common denominator seen	M1
< cao	A1

Answer: **<**

Question 11

32.30 seen	M1
£2.70 cao	A1

Answer: **£2.70**

Question 12

method seen	M1
0.85 cao	A1

Answer: **0.85**

Question 13

0.918, 0.878, 0.663, 0.458 cao	B1

Answer: **0.918, 0.878, 0.663, 0.458**

Question 14

converts to a common denominator	M1
5 cao	A1

Answer: **5**

Question 15

finds 10% of 60 = 6 and 5% of 60 = 3 oe	M1
9 cao	A1

Answer: **9**

Question 16

24 cao	B1

Answer: **24**

Question 17

fraction as a percentage	M1
74% cao	A1

Answer: **74%**

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Question 18

0.35 oe cao	**B1**
35% cao, ft decimal x 100	**B1**

Answer: **0.35; 35%**

Question 19

60 divided by 3 = 20 seen	**M1**
40 cao	**A1**

Answer: **40**

Question 20

1/3 of 90 ticked; cao	**B1**

Answer: **1/3 of 90 (= 30)**

Question 21

percentage found	**M1**
104.4 m cao	**A1**

Answer: **104.4 m**

Question 22

sets up a common form for comparison, e.g. converts 3/8 towards a decimal or 0.35 towards a fraction /1000 oe	**M1**
3/8 = 0.375 cao	**A1**
cso; correct comparison stated, e.g. 0.375 > 0.35 so 3/8 is greater (answer given, method must be shown)	**A1**

Answer: **3/8 = 0.375, and 0.375 > 0.35, so 3/8 is greater than 0.35.**

Question 23

D cao	**B1**

Answer: **D**

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