MASTER MATHS GCSE

## GCSE Mathematics 9-1

# Fractions

(Non-Calculator)

**Mark Scheme**

**Total available marks: 55**

| Q | Answer | Working | Mark |
|---|---|---|---|
| **1** | *Any fraction equivalent to* $\frac{2}{3}$<br>*e.g.* $\frac{4}{6}$ | Multiply the top and bottom by the same number<br>e.g. $\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$ | 1 |
| **2** | 15 | $4 \times 5 = 20$, so multiply the top by 5 too<br>$3 \times 5 = 15$ | 1 |
| **3** | 30 | $5 \times 5 = 25$, so multiply the bottom by 5 too<br>$6 \times 5 = 30$ | 1 |
| **4** | $\frac{3}{6}, \frac{6}{12}, \frac{9}{18}$ | A fraction is equal to $\frac{1}{2}$ when the bottom is double the top<br>$\frac{4}{10}$ and $\frac{5}{8}$ are not<br>(1 mark for two correct with no wrong ones) | 2 |
| **5** | $\frac{3}{4}$ | Divide the top and bottom by 2<br>$\frac{6 \div 2}{8 \div 2} = \frac{3}{4}$ | 1 |
| **6** | $\frac{3}{5}$ | Divide the top and bottom by 5<br>$\frac{15 \div 5}{25 \div 5} = \frac{3}{5}$ | 1 |
| **7** | $\frac{3}{4}$ | Divide the top and bottom by 6 (the highest common factor)<br>$\frac{18 \div 6}{24 \div 6} = \frac{3}{4}$ | 1 |
| **8** | $\frac{2}{3}$ | Divide the top and bottom by 14<br>$\frac{28 \div 14}{42 \div 14} = \frac{2}{3}$<br>(or divide by 2, then by 7) | 1 |
| **9** | No, 6 and 15 can both still be divided by 3, so the simplest form is $\frac{2}{5}$ | $\frac{6 \div 3}{15 \div 3} = \frac{2}{5}$ | 1 |
| **10** | $\frac{3}{4}$ | White marbles: $20 - 5 = 15$<br>$\frac{15}{20} = \frac{3}{4}$ (divide by 5) | 2 |

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|---|---|---|---|
| **11** | $\frac{2}{3}$ | 1 hour = 60 minutes<br>$\frac{40}{60} = \frac{2}{3}$ (divide by 20) | 2 |
| **12** | $\frac{3}{5}$ | Do not walk: $30 - 12 = 18$<br>$\frac{18}{30} = \frac{3}{5}$ (divide by 6) | 2 |
| **13** | $\frac{3}{4}$ | Sale price as a fraction of the usual price: $\frac{6}{8}$<br>$\frac{6}{8} = \frac{3}{4}$ (divide by 2) | 2 |
| **14** | $\frac{9}{40}$ | Change to the same unit: £2 = 200p<br>$\frac{45}{200} = \frac{9}{40}$ (divide by 5) | 2 |
| **15** | $\frac{2}{3}$ | Make the denominators the same (15):<br>$\frac{3}{5} = \frac{9}{15}$ and $\frac{2}{3} = \frac{10}{15}$<br>$10 > 9$ | 2 |
| **16** | $>$ | Make the denominators the same (24):<br>$\frac{5}{8} = \frac{15}{24}$ and $\frac{7}{12} = \frac{14}{24}$<br>$15 > 14$, so $\frac{5}{8} > \frac{7}{12}$ | 2 |
| **17** | $\frac{5}{16}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}$ | Make the denominators the same (16):<br>$\frac{8}{16}, \frac{6}{16}, \frac{5}{16}, \frac{12}{16}$<br>(1 mark for changing to the same denominator) | 2 |
| **18** | $\frac{7}{12}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$ | Make the denominators the same (12):<br>$\frac{8}{12}, \frac{7}{12}, \frac{9}{12}, \frac{10}{12}$<br>(1 mark for changing to the same denominator) | 2 |
| **19** | $\frac{7}{10}, \frac{13}{20}, \frac{3}{5}, \frac{1}{2}$ | Make the denominators the same (20):<br>$\frac{12}{20}, \frac{14}{20}, \frac{13}{20}, \frac{10}{20}$<br>(1 mark for changing to the same denominator) | 2 |
| **20** | $\frac{7}{18}, \frac{4}{9}, \frac{2}{3}, \frac{5}{6}$ | Make the denominators the same (18):<br>$\frac{15}{18}, \frac{8}{18}, \frac{12}{18}, \frac{7}{18}$<br>(1 mark for changing to the same denominator) | 2 |

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|---|---|---|---|
| **21** | $\frac{1}{2}, \frac{5}{8}, \frac{11}{16}, \frac{3}{4}$ | Make the denominators the same (16):<br>$\frac{12}{16}, \frac{10}{16}, \frac{11}{16}, \frac{8}{16}$<br>(1 mark for changing to the same denominator) | 2 |
| **22** | $\frac{1}{4}, \frac{3}{10}, \frac{7}{20}, \frac{2}{5}$ | Make the denominators the same (20):<br>$\frac{8}{20}, \frac{6}{20}, \frac{5}{20}, \frac{7}{20}$<br>(1 mark for changing to the same denominator) | 2 |
| **23** | $\frac{2}{3}, \frac{7}{12}, \frac{5}{9}, \frac{1}{2}$ | Make the denominators the same (36):<br>$\frac{20}{36}, \frac{24}{36}, \frac{18}{36}, \frac{21}{36}$<br>(1 mark for changing to the same denominator) | 2 |
| **24** | $\frac{2}{3}, \frac{7}{10}, \frac{3}{4}, \frac{4}{5}$ | Make the denominators the same (60):<br>$\frac{45}{60}, \frac{40}{60}, \frac{42}{60}, \frac{48}{60}$<br>(1 mark for changing to the same denominator) | 2 |
| **25** | Cal, Ana, Bea, Dev | Make the denominators the same (40):<br>Ana $\frac{24}{40}$, Bea $\frac{25}{40}$, Cal $\frac{20}{40}$, Dev $\frac{26}{40}$<br>(1 mark for changing to the same denominator) | 2 |
| **26** | $\frac{7}{8}$ | Make the denominators the same (24):<br>$\frac{7}{8} = \frac{21}{24}$, which is $\frac{3}{24}$ away from 1<br>$\frac{5}{6} = \frac{20}{24}$, which is $\frac{4}{24}$ away from 1 | 3 |
| **27** | $\frac{5}{12}$ | Make the denominators the same (24):<br>$\frac{1}{2} = \frac{12}{24}, \frac{3}{8} = \frac{9}{24}, \frac{5}{12} = \frac{10}{24}$<br>$\frac{9}{24}$ is 3 away from $\frac{12}{24}$, $\frac{10}{24}$ is only 2 away | 3 |
| **28** | No, they are both $\frac{1}{12}$ away from $\frac{3}{4}$ | Make the denominators the same (12):<br>$\frac{3}{4} = \frac{9}{12}, \frac{5}{6} = \frac{10}{12}, \frac{2}{3} = \frac{8}{12}$<br>$\frac{10}{12}$ and $\frac{8}{12}$ are both $\frac{1}{12}$ away from $\frac{9}{12}$ | 3 |

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|---|---|---|---|
| **29** | Ben | Make the denominators the same (24):<br>Ali: $\frac{3}{8} = \frac{9}{24}$<br>Ben: $\frac{5}{12} = \frac{10}{24}$ | 2 |
| **30** | Priya | Make the denominators the same (100):<br>Priya: $\frac{17}{20} = \frac{85}{100}$<br>Josh: $\frac{21}{25} = \frac{84}{100}$ | 2 |

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| **Total available marks for this paper** | **55** |