

Name:

Class/Set:

# Demo Number Questions

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Please answer on this sheet, showing all your working.

1: Work out the following:

a)  $(-9) \times 5 + (-2) \times (-5)$

b)  $3 + (-2) \times (-7)$

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2: Express as a product of prime factors:

a) 8

b) 12

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3: Convert the following fractions:

a)  $7\frac{2}{3}$  to top-heavy

b)  $\frac{56}{9}$  to mixed

c)  $9\frac{2}{7}$  to top-heavy

d)  $\frac{21}{8}$  to mixed

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4: Work out the following, showing your method and giving your answer in its simplest form:

a)  $\frac{1}{2} + \frac{1}{6}$

b)  $\frac{1}{8} - \frac{3}{32}$

c)  $\frac{5}{6} + \frac{1}{12}$

d)  $\frac{4}{5} - \frac{19}{25}$

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5: Work out the following, showing your method and giving your answer in its simplest form:

a)  $2\frac{4}{7} - 1\frac{5}{8}$

b)  $4\frac{2}{5} + 3\frac{5}{9}$

c)  $3\frac{2}{3} - 1\frac{1}{2}$

d)  $4\frac{1}{2} + 2\frac{3}{5}$

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6: Work out the following, showing your method and giving your answer in its simplest form:

a)  $\frac{1}{7} \div \frac{9}{10}$

b)  $\frac{1}{4} \times \frac{1}{5}$

c)  $\frac{5}{6} \times \frac{3}{7}$

d)  $\frac{1}{8} \div \frac{3}{8}$

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7: Work out the following, showing your method and giving your answer in its simplest form:

a)  $4\frac{1}{2} \div 1\frac{1}{2}$

b)  $1\frac{1}{5} \times 1\frac{1}{4}$

c)  $1\frac{2}{7} \times 3\frac{1}{2}$

d)  $2\frac{1}{4} \div 3\frac{1}{3}$

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8: Simplify the following surds:

a)  $\sqrt{18} + \sqrt{2}$

b)  $\sqrt{250} - \sqrt{160}$

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9: Simplify the following, leaving your answer in index form:

a)  $(7^7)^6$

b)  $10^{10} \times 10^4$

c)  $4^{10} \div 4^9$

d)  $9^4 \div 9^2$

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10: Arrange in increasing order:

a)  $\frac{1}{10}$ , 76%, 0.45

b)  $\frac{1}{2}$ , 78%, 0.04

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11: Work out the following:

a) Increase 20 g by 5%

b) Decrease 100 min by 8%

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12: Give the following bounds:

a) 77.9 km<sup>2</sup>  
lower bound

b) 374000 cm<sup>2</sup> (nearest 1000 cm<sup>2</sup>)  
lower bound

\_\_\_\_\_ upper bound

\_\_\_\_\_ upper bound

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13: Is each number written in standard form? (True/False):

a)  $2.8 \times 16^{75}$

b)  $10 \times 10^{94}$

c)  $7^{-2}$

d)  $0.4934 \times 10^5$

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14: Write as a normal number:

a)  $7.6 \times 10^{-2}$

b)  $6.416 \times 10^1$

c)  $4.257 \times 10^{-3}$

d)  $5 \times 10^5$

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15: Write the following in standard form:

a) 356.9

b) 0.869

c) 0.00092517

d) 14000

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16: Work out the following (write down all the figures on your calculator):

a)  $\frac{(-5.5) + 2.3}{7.7 + 2.6}$

b)  $\frac{6.6 \times (-4.4)}{7.3 + 5.1}$

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c)  $\frac{(-4.9) + (-1.8)}{(-6.7) \times 2.4}$

d)  $\frac{9.6 - 9.4}{3.6 + (-1.1)}$

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# Answers: Demo Number Questions

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1: a)  $-35$  b)  $17$

2: a)  $2 \times 2 \times 2$  b)  $2 \times 2 \times 3$

3: a)  $\frac{23}{3}$  b)  $6\frac{2}{9}$  c)  $\frac{65}{7}$  d)  $2\frac{5}{8}$

4: a)  $\frac{3}{6} + \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$  b)  $\frac{4}{32} - \frac{3}{32} = \frac{1}{32}$  c)  $\frac{10}{12} + \frac{1}{12} = \frac{11}{12}$  d)  $\frac{20}{25} - \frac{19}{25} = \frac{1}{25}$

5: a)  $2\frac{32}{56} - 1\frac{35}{56} = \frac{53}{56}$  b)  $4\frac{18}{45} + 3\frac{25}{45} = 7\frac{43}{45}$  c)  $3\frac{4}{6} - 1\frac{3}{6} = 2\frac{1}{6}$  d)  $4\frac{5}{10} + 2\frac{6}{10} = 7\frac{1}{10}$

6: a)  $\frac{1}{7} \div \frac{9}{10} = \frac{1}{7} \times \frac{10}{9} = \frac{10}{63}$  b)  $\frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$   
c)  $\frac{5}{6} \times \frac{3}{7} = \frac{5}{2} \times \frac{1}{7} = \frac{5}{14}$  d)  $\frac{1}{8} \div \frac{3}{8} = \frac{1}{8} \times \frac{8}{3} = \frac{1}{1} \times \frac{1}{3} = \frac{1}{3}$

7: a)  $\frac{9}{2} \div \frac{3}{2} = \frac{9}{2} \times \frac{2}{3} = \frac{3}{1} \times \frac{1}{1} = \frac{3}{1} = 3$  b)  $\frac{6}{5} \times \frac{5}{4} = \frac{3}{1} \times \frac{1}{2} = \frac{3}{2} = 1\frac{1}{2}$   
c)  $\frac{9}{7} \times \frac{7}{2} = \frac{9}{1} \times \frac{1}{2} = \frac{9}{2} = 4\frac{1}{2}$  d)  $\frac{9}{4} \div \frac{10}{3} = \frac{9}{4} \times \frac{3}{10} = \frac{27}{40}$

8: a)  $4\sqrt{2}$  b)  $\sqrt{10}$

9: a)  $7^{42}$  b)  $10^{14}$  c)  $4$  d)  $9^2$

10: a)  $\frac{1}{10}$ ,  $0.45$ ,  $76\%$  ( $10\%$ ,  $45\%$ ,  $76\%$ ) b)  $0.04$ ,  $\frac{1}{2}$ ,  $78\%$  ( $4\%$ ,  $50\%$ ,  $78\%$ )

11: a)  $21$  g b)  $92$  min

12: a)  $77.85$  km<sup>2</sup>  
 $77.95$  km<sup>2</sup> b)  $373500$  cm<sup>2</sup>  
 $374500$  cm<sup>2</sup>

13: a) False b) True c) False d) False

14: a)  $0.076$  b)  $64.16$  c)  $0.004257$  d)  $500000$

15: a)  $3.569 \times 10^2$  b)  $8.69 \times 10^{-1}$  c)  $9.2517 \times 10^{-4}$  d)  $1.4 \times 10^4$

16: a)  $\frac{-3.2}{10.3} = -0.3106796117$  b)  $\frac{-29.04}{12.4} = -2.341935484$   
c)  $\frac{-6.7}{-16.08} = 0.4166666667$  d)  $\frac{0.2}{2.5} = 0.0800000000$