

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) $3 \times (-2) - (-5) \times (-7)$

b) $(-7) + (-9) \times 4$

2: Express as a product of prime factors:

a) 45

b) 100

3: Convert the following fractions:

a) $4\frac{3}{7}$ to top-heavy

b) $\frac{41}{4}$ to mixed

c) $6\frac{3}{4}$ to top-heavy

d) $\frac{39}{10}$ to mixed

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

a) $\frac{19}{40} - \frac{3}{8}$

b) $\frac{5}{7} + \frac{1}{28}$

c) $\frac{1}{4} + \frac{1}{2}$

d) $\frac{17}{18} - \frac{5}{6}$

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

a) $3\frac{9}{10} - 1\frac{2}{3}$

b) $4\frac{2}{9} + 2\frac{1}{5}$

c) $3\frac{2}{5} + 4\frac{5}{7}$

d) $2\frac{2}{3} - 1\frac{2}{5}$

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

a) $\frac{1}{2} \times \frac{2}{3}$

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

c) $\frac{2}{5} \div \frac{7}{9}$

d) $\frac{5}{9} \times \frac{1}{5}$

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

a) $1\frac{1}{6} \div 2\frac{1}{3}$

b) $1\frac{2}{5} \times 2\frac{2}{3}$

c) $1\frac{1}{5} \div 1\frac{2}{7}$

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

8: Simplify the following surds:

a) $\sqrt{24} - \sqrt{6}$

b) $\sqrt{8} + \sqrt{18}$

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

a) $10^9 \times 10$

b) $(3^2)^4$

c) $4^{14} \div 4^{10}$

d) $9^{12} \div 9^3$

10: Arrange in increasing order:

a) $\frac{7}{10}$, 38%, 0.62

b) $\frac{3}{10}$, 66%, 0.78

11: Work out the following:

a) Increase £40.00 by 6%

b) Decrease 500 sec by 50%

12: Give the following bounds:

a) 587 km (nearest km)
lower bound

b) 7970 cm² (nearest 10 cm²)
lower bound

_____ upper bound

_____ upper bound

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

a) 5.2^{-66}

b) 32.08×10^{-61}

c) 8×10^{-70}

d) 5.583×10^{76}

14: Write as a normal number:

a) 3.99×10^3

b) 5.0932×10^{-4}

c) 7.1×10^{-1}

d) 1×10^{-3}

15: Write the following in standard form:

a) 701630

b) 43200

c) 0.000082

d) 7266000

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

a) $\frac{(-2.3) + (-9.1)}{(-5.5) + (-8.2)}$

b) $\frac{(-2.5) \times (-9.2)}{(-1.2) + 1.5}$

c) $\frac{1.7 - (-3.5)}{9.8 + 3.3}$

d) $\frac{(-1.3) - 9.3}{(-9.7) \times (-7.6)}$

Answers: Demo Number Questions

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1: a) -41

b) -43

2: a) $3 \times 3 \times 5$

b) $2 \times 2 \times 5 \times 5$

3: a) $\frac{31}{7}$

b) $10\frac{1}{4}$

c) $\frac{27}{4}$

d) $3\frac{9}{10}$

4: a) $\frac{19}{40} - \frac{15}{40} = \frac{4}{40} = \frac{1}{10}$

b) $\frac{20}{28} + \frac{1}{28} = \frac{21}{28} = \frac{3}{4}$

c) $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

d) $\frac{17}{18} - \frac{15}{18} = \frac{2}{18} = \frac{1}{9}$

5: a) $3\frac{27}{30} - 1\frac{20}{30} = 2\frac{7}{30}$

b) $4\frac{10}{45} + 2\frac{9}{45} = 6\frac{19}{45}$

c) $3\frac{14}{35} + 4\frac{25}{35} = 8\frac{4}{35}$

d) $2\frac{10}{15} - 1\frac{6}{15} = 1\frac{4}{15}$

6: a) $\frac{1}{2} \times \frac{2}{3} = \frac{1}{1} \times \frac{1}{3} = \frac{1}{3}$

b) $\frac{1}{9} \div \frac{7}{10} = \frac{1}{9} \times \frac{10}{7} = \frac{10}{63}$

c) $\frac{2}{5} \div \frac{7}{9} = \frac{2}{5} \times \frac{9}{7} = \frac{18}{35}$

d) $\frac{5}{9} \times \frac{1}{5} = \frac{1}{9} \times \frac{1}{1} = \frac{1}{9}$

7: a) $\frac{7}{6} \div \frac{7}{3} = \frac{7}{6} \times \frac{3}{7} = \frac{1}{2} \times \frac{1}{1} = \frac{1}{2}$

b) $\frac{7}{5} \times \frac{8}{3} = \frac{56}{15} = 3\frac{11}{15}$

c) $\frac{6}{5} \div \frac{9}{7} = \frac{6}{5} \times \frac{7}{9} = \frac{2}{5} \times \frac{7}{3} = \frac{14}{15}$

d) $\frac{9}{4} \times \frac{8}{5} = \frac{9}{1} \times \frac{2}{5} = \frac{18}{5} = 3\frac{3}{5}$

8: a) $\sqrt{6}$

b) $5\sqrt{2}$

9: a) 10^{10}

b) 3^8

c) 4^4

d) 9^9

10: a) 38%, 0.62, $\frac{7}{10}$ (38%, 62%, 70%)

b) $\frac{3}{10}$, 66%, 0.78 (30%, 66%, 78%)

11: a) £42.40

b) 250 sec

12: a) 586.5 km
587.5 km

b) 7965 cm²
7975 cm²

13: a) False

b) False

c) True

d) True

14: a) 3990

b) 0.00050932

c) 0.71

d) 0.001

15: a) 7.0163×10^5

b) 4.32×10^4

c) 8.2×10^{-5}

d) 7.266×10^6

16: a) $\frac{-11.4}{-13.7} = 0.8321167883$

b) $\frac{23}{0.3} = 76.66666667$

c) $\frac{5.2}{13.1} = 0.3969465649$

d) $\frac{-10.6}{73.72} = -0.1437873033$