MISCELLANEOUS EXAMPLES IN ARITHMETIC

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EXAMPLES IN ARITHMETIC

BY THE

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ADVERTISEMENT.

THE following collection of Examples in Arithmetic has been drawn up to form a kind of Supplement to the common Treatises on that subject. It is generally found in most Schools, whatever Arithmetic is used, that the master has either himself to invent additional examples or to select them from other works; and it was thought that the present collection might therefore be generally serviceable. The examples are principally taken from Examination Papers set at the Universities, and various Schools. Each Example will be found to contain questions which require a knowledge of *different* rules, so that the student may be always practising himself in general examples, without forgetting one rule as soon as he has learnt another.

Marlborough College: June, 1851.

NOTE TO THE SECOND EDITION.

In this Edition, errors have been corrected, the answers made more *exact*, and a few Examples, containing more questions, have been added.

Wimborne Minster: Nov. 1857.

NOTE TO THE THIRD EDITION.

This Edition has been still further enlarged, and the Examples have been *varied* as much as possible.

Wimborne Minster: May, 1861.

MISCELLANEOUS EXAMPLES

IN

ARITHMETIC.

Ex. 1.

1. Find the sum of £2 13*s.* 5½*d.*; £7 9*s.* 4¼*d.*; £5 15*s.* 4½*d.*; £9 17*s.* 6½*d.*; £7 16*s.* 3*d.*; and £5 14*s.* 7¾*d.*

2. From 90 thousand and 90 subtract 12345.

3. In 365¼ days, 5 hours, 48 minutes, how many minutes?

4. Divide 3587 linear yds. 9 ins. by 27.

5. Add together $3\frac{1}{2}$, $4\frac{1}{3}$, $5\frac{1}{4}$, $\frac{3}{4}$ of $\frac{7}{8}$, and $\frac{1}{2}$ of $\frac{1}{2}$ of $\frac{5}{6}$, and reduce $\frac{7}{8}$ of $\frac{5}{7}+\frac{3}{5}$ of $\frac{4}{7}$ to a simple fraction.

6. What fraction of a crown is 2*s.* 9*d.*; and what decimal of £5 is 3*s.* 6*d.*?

7. Multiply 2·5 by ·0025; and divide 16·9 by ·0013, and by 1·3.

8. Find the value of ·3756 of £1, and reduce $\frac{1}{800}$ to its equivalent simple decimal.

Ex. 2.

1. Multiply 13 acres, 3 roods, 18 poles, by $\frac{1}{2}$ of $\frac{3}{4}$ of 18.

2. The value of a mark being 13*s.* 4*d.*, and that of a moidore 27*s.*, how many half-crowns are there in 30 marks and 40 moidores together?

3. Find how often £24 11*s.* 6½*d.* is contained in £8060 18*s.* 10*d.*

4. Multiply ·323756 by ·0038, and divide 21 by ·0035.

5. Prove that the sum of the fractions $1\frac{1}{16}$ and $\frac{1}{1\frac{1}{3}}$ is equal to 5 times their difference.

6. Reduce 6*s.* 3¼*d.* to the decimal of a pound, and find the value of ·0324 of a guinea.

7. What is the value of $\left\{ 2\frac{3}{4} + \frac{5}{8} \text{ of } \frac{7}{3\frac{1}{2}} - \frac{1\frac{3}{5}}{2\frac{1}{2}} \right\} + 1\frac{77}{225}$?

8. What will £7 10*s.* a week amount to between the 7th of March and the 4th of July?

Ex. 3.

1. Find the greatest common measure of 6441 and 10283, and the least common multiple of 209 and 304.

2. A plank is 3 inches broad and 2 thick; what length must be cut off to contain 8 ft. of timber?

3. A service of plate consists of articles weighing respectively 203 oz. 8 dwts. 2 gr.; 408 oz. 9 dwts.; 112 oz. 8 dwts. 3 gr.; 71 oz. 7 dwts.; 73 oz. 5 dwts. 5 gr.; 121 oz. 4 dwts. 6 gr.; 131 oz. 7 dwts.; 105 oz. 5 dwts. 3 gr. What is the weight of the whole?

4. Add together $\frac{3}{7}$ of £15, $\frac{1}{4}$ of $\frac{1}{2\frac{1}{2}}$ of $\frac{4}{5}$ of £1 12*s.* and $\frac{5}{7}$ of 3*d.*; reduce the result to the decimal of £10.

5. Divide ·0068 by 340, 314 by ·0005, and 9·6195 by 1·21.

6. How many coins, each worth 4*s.* 9*d.*, are there in £231 16*s.*?

7. Reduce $\frac{4\frac{4}{15} \text{ of } 2\frac{5}{6}}{5\frac{1}{3} - 4\frac{1}{2}}$ and $\frac{5}{7} \times \left(100 - \frac{200}{3} + \frac{7\frac{1}{3}}{2\frac{1}{4}}\right)$ to simple fractions.

8. If £1 sterling be worth 12 florins, and also worth 25 francs 56 centimes; how many francs and centimes is one florin worth? (100 centimes = 1 franc.)

Ex. 4.

1. The sum of two numbers is 234, and the greater is 182; what is their product? Add together $\frac{3}{5}$ of £3 7*s.* 6*d.* and $\frac{3}{8}$ of $\frac{1}{4}$ of $4\frac{1}{2}$ guineas.

2. Reduce 253 guineas to crowns, and 76 moidores into pounds.

3. If a wheel of 5 yds. 1 ft. 6 in. in circumference make 64,640 revolutions, what space will it pass over?

4. Find the value of ·07 of £2 10*s.*, and express the result as the decimal of £1.

5. The sides of a rectangular field are 253 yards, and $\frac{1}{4}$ mile, how many acres does it contain?

6. Divide 58546·73 by ·23141; and find what fractional part 15*s.* 9*d.* is of £1 6*s.* 3*d.*

7. What sum will purchase 500 vols. at 2*s.* 3*d.* each, 300 at 5*s.*, 260 at 7*s.* 6*d.*, and 30 at £1 1*s.*? What will this cost be reduced to if a discount of 10 per cent. be allowed?

8. Find the simple fraction which is equal to the difference of $\frac{1}{8}$ of $3\frac{7}{11}$ and $\frac{3}{4}$ of $5\frac{1}{4}$.

Ex. 5.

1. Find the sum of $3\frac{5}{12}$, $7\frac{1}{9}$, $8\frac{3}{8}$, $4\frac{1}{6}$, and $2\frac{1}{4}$. Divide $11\frac{3}{5}$ by $\frac{4}{5}$ of $3\frac{1}{5}$.

2. Find the least common multiple of 24, 7, 4, 21 and 14; and reduce to a common denominator $\frac{1}{7}$, $\frac{3}{5}$, $\frac{4}{9}$, $\frac{5}{24}$, $\frac{7}{72}$.

3. If 5 oz. of silk can be spun into a thread 2 fur. 20 poles long; what weight of silk would supply a thread sufficient to reach the moon, if the distance be 240,000 miles?

4. Determine the continued product of $\frac{33}{91}$, $\frac{26}{119}$, $\frac{189}{267}$, and $\frac{23}{36}$, expressing the result in its lowest terms.

5. Divide 7·001722 by ·0031, and prove the truth of the result by vulgar fractions.

6. Reduce $\frac{3}{11}$ of 16*s.* $0\frac{1}{2}$*d.* to the fraction of 17*s.* 6*d.*

7. What decimal is equivalent to the sum of ·47, ·013 and $\frac{\cdot 00625}{\cdot 025}$?

8. When the pound sterling is worth 45 pauls 9 baiocchi (Roman) and $25\frac{1}{2}$ francs (French), what is the value of the Napoleon of 20 francs in Roman money? (10 baiocchi = 1 paul.)

Ex. 6.

1. Add together £$3\frac{5}{8}$, $7\frac{1}{2}$*s.*, and $4\frac{3}{4}$*d.*, and reduce the sum to a fraction of a pound. Subtract $13\frac{3}{7}$ from $15\frac{2}{11}$.

2. Find the product of 3·1416 × 2·89, and of ·7854 × (·02)².

3. How many pieces of coin of 1*s.* 7*d.* each are there in £2827 4*s.*?

4. What is the cost of 847 articles at 3*s.* $4\frac{1}{4}$*d.* each?

5. A room is 13 feet 4 inches long, and 12 feet 6 inches broad; find the expense of carpeting it at 4*s.* 6*d.* per square yard.

6. Reduce $\frac{3}{5}$ of 13*s.* 6*d.* to the decimal of a pound; and add together $\frac{4}{11}$ of $\frac{3}{8}$ of $\frac{1}{5}$, $\frac{7}{8}$ of $\frac{4}{5}$ of $\frac{10}{13}$, and $\frac{2}{5}$ of $1\frac{3}{5}$.

7. Reduce ·90, ·416, ·53, to their equivalent vulgar fractions.

8. Given, that the circumference of a circle is to its diameter as 3·1416 to 1; find (in feet and inches) the circumference of a circle, whose diameter is $22\frac{1}{2}$ ft.

Ex. 7.

1. How many grains of gold are there in 9 lbs. 11 oz. 13 dwts. 20 gr.?

2. Multiply 22·0001 by 1000·22, and ·201 by ·3̇.

3. If light travels 192,000 miles per second, how far distant is the sun, if his light is 490 seconds in reaching us? Find the value of $\frac{355}{502}$ to 5 places of decimals, and reduce 3·1416 to a fraction in its lowest terms.

4. If 3 cwt. 17 lbs. cost £4 15*s.* $7\frac{1}{2}$*d.*, what will 16 cwt. 3 qrs. 12 lbs. cost?

5. Reduce into simpler forms $\frac{17\frac{1}{3}}{73}$ and $\frac{7\frac{3}{7}}{40\frac{5}{6}}$ and find the quotient of the latter by the former.

6. What is the cost of paving a court yard, 13 ft. 6 in. by 8 ft. 9 in., at 7*s.* 8*d.* per square yard?

7. Find the difference between $\frac{1}{3}$ of £1 and $\frac{4}{5}$ of 2 guineas.

8. If a piece of cloth be $94\frac{1}{2}$ yards long and $1\frac{1}{8}$ yards broad, how broad is a piece of the same content whose length is $74\frac{2}{3}$ yards?

Ex. 8.

1. What is the difference between the 11th and 12th parts of 1320? Multiply ·0010102 by $\frac{1}{26}$ of 109·01, and 1·0001 by ·09081.

2. Find the simple fractions equivalent to $\frac{2}{3}$. $\frac{\frac{2}{3}-1}{2}$. $\frac{\frac{2}{3}-2}{3}$ and $\frac{2}{3}$. $\frac{\frac{2}{3}-1}{2}$. $\frac{\frac{2}{3}-2}{3}$. $\frac{\frac{2}{3}-3}{4}$. $\frac{\frac{2}{3}-4}{5}$. Simplify $3\frac{2}{3}-4\frac{1}{2}+7\frac{3}{4}-\frac{3}{4}$.

3. Reduce $\frac{9}{17}$ to a decimal, and find what fraction 2*s.* $2\frac{3}{4}$*d.* is of 15*s.* $7\frac{1}{4}$*d.*

4. A person's salary is £191 12*s.* 6*d.* per annum; what ought he to receive for 60 days' service?

5. If a tradesman with a capital of £2000 gain £50 in 3 months, what sum will he gain with a capital of £3000 in 7 months?

6. Reduce 24 days 2 hours 8 min. to the fraction of a month of 30 days.

7. In the civil year 97 days are intercalated in 400 years; what is the average length of the year?

8. Find the value of 5 cwt. 3 qrs. 16 lbs. at £3 7*s.* 6*d.* per cwt. by practice.

Ex. 9.

1. How many half-crowns, sixpences, and fourpences are there in 25 pounds? and how many cwt. in 15680 oz. av.?

2. Reduce 16 cwt. 1 qr. 21 lbs. to the decimal of a ton.

3. What is the tax upon £302 3*s.* 7*d.* when £429 8*s.* 3*d.* is rated at 13*s.* 6*d.*?

4. Find the value of $\frac{(2+\frac{1}{2})+(3+\frac{1}{4})}{(\frac{1}{2}-\frac{1}{3})\times(4-3\frac{3}{4})}$. Reduce $3\frac{1}{2}$ of £1 8*s.* 4*d.* to the fraction of £5.

5. If a single article cost 3*s.* 7*d.*, how many dozens may be bought for £86 10*s.*?

6. Required the vulgar fraction which is equivalent to ·416, and its square root to 6 decimal places.