Aptitude - Decimals & Fractions

Decimal Fractions

Fractions having denominators in power of 10 are called decimal fractions.

1/10 = .1, 2/10 = .2, ...
1/100 = .01, 2/100 = .02, ...
1/1000 = .001, 2/1000 = .002, ...

Converting a decimal number into a fraction

In the denominator part, place 1 under decimal point and suffix with as many zeroes as is the total number of digits after decimal point. Remove the decimal point and reduce the fraction to its lowest term.

.56 = 56/100 = 14/25
.0024 = 24/10000 = 3/1250

Suffixing zeroes to the right of a decimal fraction does not change its value. Thus 0.6 = 0.60 = 0.600 etc.

If numerator and denominator contains same number of decimal places, we can remove decimal signs from each number.

2.71/3.41 = 271/341
14.4/15.6 = 144/156 = 12/13

Adding decimals

Place each number under each other in such a way that decimal points lies in same colum. Numbers so arranged can be added in usual way.

21.3 + .213 + 3.21 + .021 + 2.0031 = ?

```
 21.3
   .213
  3.21
   .021
  2.0031
--------
 26.7471
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```

Subtracting decimals

Place each number under each other in such a way that decimal points lies in same colum. Numbers so arranged can be subtracted in usual way.

```
 23.004
-16.5628
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  6.4412
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```

Multiplying decimals

Multiply given numbers without considering decimal point. In product, mark the decimal point as many places of decimals as is the sum of number of decimal places in the given numbers.

2.3 x 0.12 = ?
23 x 12 = 276
Sum of decimal places = 1 + 2 = 3
∴ 2.3 x 0.12 = 0.276

Dividing decimals by number

Divide given decimal number without considering decimal point. In quotient, mark the decimal point as many places of decimals as is the sum of number of decimal places in the given dividend.

0.63 / 9 = ?
63 / 9 = 7
Decimal places in dividend = 2
∴ 0.63 / 9 = 0.07

Dividing decimals by decimals

Multiply both dividend and divisor by such multiple of 10 so that divisor becomes a whole number. Divide dividend without considering decimal point. In quotient, mark the decimal point as many places of decimals as is the sum of number of decimal places in the given dividend.

0.00042/ 0.06 = ?
0.00042/ 0.06 = (0.00042 x 100)/ (0.06 x 100)
= 0.042 / 6

Now 42/6 = 7
Decimal places in dividend = 3
∴ 0.00042 / 0.06 = 0.007

Recurring Decimals

Pure recurring decimals

A decimal fraction in which all figures after decimal point are repeated is called a pure recurring decimals. For example, 0.5555, 0.323232

Converting pure recurring decimal to fraction

Put the repeating figure only once in the numerator and put as many nines in the denominator as in number of repeating figures.

Express 0.33333 in fraction.
0.3333 = 3/9 = 1/3

Express 0.2727 in fraction.
0.2727 = 27/99 = 3/11

Mixed recurring decimals

A decimal fraction in which some figures are not repeating whereas some of them are repeating, is called as mixed recurring decimals. For example, 0.534242, 0.078888.

Converting mixed recurring decimal to fraction

Put the difference of numbers formed by digits after decimal point taking repeated digits once and that formed by non-repeating number, in the numerator and put as many nines in the denominator as in number of repeating figures and annex them with as many zeroes as in the non-repeating digits.

Express 0.266666 in fraction.
0.26666 = (26-2)/90 = 24/90 = 4/15

Express 0.326868 in fraction.
0.326868 = (3268 - 32)/9900 = 3236/9900 = 809/2475

Practice Question on Decimals

Q 1 - Which is the following is fraction for 0.36?

A - 9/25

B - 51/25

C - 3/400

D - 2081/250

Q 2 - Which is the following is fraction for 2.04?

A - 9/25

B - 51/25

C - 3/400

D - 2081/250

Q 3 - Which is the following is fraction for .0075?

A - 9/25

B - 51/25

C - 3/400

D - 2081/250

Q 4 - Which is the following is fraction for 8.324?

A - 9/25

B - 51/25

C - 3/400

D - 2081/250

Q 5 - Which of the following is the correct ascending order for 3/8, 7/12, 2/3, 16/25, 14/15?

A - 3/8 < 7/12 < 2/3 < 16/25 < 14/15

B - 3/8 < 7/12 < 16/25 < 2/3 < 14/15

C - 7/12 < 3/8 < 2/3 < 16/25 < 14/15

D - 2/3 < 7/12 < 3/8 < 16/25 < 14/15

Q 6 - Which of the following is the correct descending order for 3/5, 4/7, 8/9, 9/11, 13/15?

A - 3/5 > 4/7 > 8/9 > 9/11 > 13/15

B - 8/9 > 13/15 > 9/11 > 3/5 > 4/7

C - 13/15 > 8/9 > 9/11 > 3/5 > 4/7

D - 13/15 > 8/9 > 3/5 > 9/11 > 4/7

Q 7 - Which of the following is the H.C.F. of 1.5, 3 and 0.6?

A - 0.3

B - 0.1

C - 0.2

D - 0.6

Q 8 - Which of the following is the L.C.M. of 1.5, 3 and 0.6?

A - 3

B - 2

C - 1

D - 6

Q 9 - 34.64 + 2.9 + 107.035 + .0086 = ?

A - 141.5436

B - 144.5836

C - 134.5678

D - 132.8765

Q 10 - 3.004 - 1.2996 = ?

A - 1.7044

B - 0.7262

C - 1.6723

D - 0.3456

Q 11 - Which of the following is the result when 6.2958 is subtracted from 10?

A - 3.7042

B - 3.8675

C - 2.8762

D - 3.8762

Q 12 - 1.71 x 1.3 = ?

A - 3.213

B - 2.223

C - 1.223

D - 3.213

Q 13 - 3.746 x 11.4 = ?

A - 42.7044

B - 40.7654

C - 34.8762

D - 42.7862

Q 14 - .5 x 0.5 x .005 x 50 = ?

A - .00625

B - .0625

C - .625

D - 6.25

Q 15 - If 172 x 38 = 6536, what is 1.72 x 0.38?

A - 65.36

B - 0.06536

C - 0.6536

D - 6.536

Q 16 - 0.0182 / 14 = ?

A - 13

B - 0.013

C - 0.0013

D - 1.3

Q 17 - 40.40 / 0.0008 = ?.

A - 50.5

B - 505

C - 5050

D - 50500

Q 18 - 0.001 / ? = 0.1

A - 0.1

B - 0.01

C - 0.001

D - 1.0

Q 19 - What is fraction for 0.313131?

A - 3/7

B - 4/9

C - 3/9

D - 31/99

Q 20 - What is fraction for 0.5366666?

A - 61/300

B - 69/550

C - 161/300

D - 8/45

Q 1 - (0.46-0.046)/(0.0046/46)=?

A - 0.414

B - 0.0414

C - 414

D - 4140

Q 2 - $(1.1^3+0.064)/(1.1^2-0.4^4+0.16^2)$=?

A - 1

B - 1.25

C - 1.5

D - 1.75

Q 3 - (0.036-0.018)/(0.0036/36)=?

A - 2

B - 6

C - 12

D - 18

Q 4 - How many digits are there to the right of decimal in the product of 32.182x36.42?

A - 6

B - 5

C - 4

D - 3

Q 5 - What is the value of 3.14×10^6

A - 314

B - 3140

C - 3140000

D - 31400

Q 6 - 12.1 / 19.8 = ?

A - 7/9

B - 11/18

C - 13/17

D - 11/19

Q 7 - (6.5 x 4.7 + 6.5 x 5.3) / (1.3 x 7.9 - 1.3 x 6.9) = ?

A - 3.9

B - 39

C - 34.45

D - 50

Q 8 - (.538 x .538 - .462 x .462) / 1 - .924= ?

A - .076

B - 1.042

C - 1

D - 2

Q 9 - 0.535353 = ?

A - 53/100

B - 53/90

C - 53/99

D - 26/45

Q 10 - 312 Rs were divided among 60 boys and some girls in such a way that each boy got 3.6 Rs and each girl got 2.40. How many girls were there?

A - 35

B - 40

C - 60

D - 65

1 Answer - A

Explanation

0.36 = 36/100 = 9/25

2Answer - B

Explanation

2.04 = 204/100 = 51/25

3Answer - C

Explanation

.0075 = 75/10000 = 3/400

4Answer - D

Explanation

8.324 = 8324/1000 = 2081/250.

5Answer - B

Explanation

3/8 = 0.375, 7/12 = 0.583, 2/3 = 0.666, 16/25 = 0.64 and 14/15 = 0.933
As .375 < .583 < .64 <.666 < .933
∴ 3/8 < 7/12 < 2/3 < 16/25 < 14/15

6Answer - B

Explanation

3/5 = 0.6, 4/7 = 0.571, 8/9 = 0.888, 9/11 = 0.818, 13/15 = 0.866
As 0.888 > 0.866 > 0.818 > 0.6 > 0.571
∴ 8/9 > 13/15 > 9/11 > 3/5 > 4/7

7Answer - A

Explanation

Make same numbers of decimal places in the given numbers.
Numbers become 1.5, 3.0 and 0.6
Without decimal places, these numbers are 15, 30 and 6.
H.C.F. of 15, 30 and 6 = 3
∴ H.C.F. of given numbers = 0.3

8Answer - A

Explanation

Make same numbers of decimal places in the given numbers.
Numbers become 1.5, 3.0 and 0.6

Without decimal places, these numbers are 15, 30 and 6.
L.C.M. of 15, 30 and 6 = 30
∴ l.C.M. of given numbers = 3

9Answer - B

Explanation

We have
34.64
2.9
107.035
.0086

144.5836

∴ 34.64 + 2.9 + 107.035 + .0086 = 144.5836

10Answer - A

Explanation

We have
3.004
-1.2996

1.7044

∴ 3.004 - 1.2996 = 1.7044

11Answer - A

Explanation

We have
10.0000
- 6.2958

3.7042

∴ 10 - 6.2958 = 3.7042

12Answer - B

Explanation

171 x 13 = 2223
Here sum of decimal places = 2 + 1 = 3
∴ 1.71 x 1.3 = 2.223

13Answer - A

Explanation

3746

x114

14984
3746x
3746xx

427044

Here sum of decimal places = 3 + 3 = 6
∴ 3.746 x 11.4 = 42.7044

14Answer - A

Explanation

We have 5 x 5 x 5 x 50 = 6250
Sum of decimal places = 1 + 2 + 3 = 6
∴ .5 x 0.5 x .005 x 50 = 0.00625.

15Answer - B

Explanation

Sum of decimal places = 2 + 3 = 5
∴ 1.72 x 0.38 = 0.06536.

16Answer - C

Explanation

182 / 14 = 13
Dividend contains 4 places of decimals.
∴ 0.0182 / 14 = 0.0013

17Answer - D

Explanation

40.40 / 0.0008 = (40.40 x 10000)/(8 x 10000) = 404000/8 = 50500

18Answer - B

Explanation

Let 0.001/x = 0.1
=> x = (0.001/0.1)x (10/10) = .01/1 = .01

19Answer - B

Explanation

=0.313131 = 31/99

20Answer - C

Explanation

0.5366666 = (536 - 53)/900 = 483/900 = 161/300.