

1. Represent the following fractions as decimals:

a. $\frac{3}{2000}$,

d. $\frac{7}{4}$;

g. $\frac{123}{20}$;

b. $\frac{17}{40}$;

e. $\frac{3}{2}$;

h. $\frac{783}{540}$;

c. $\frac{28}{140}$;

f. $\frac{9}{5}$;

i. $\frac{324}{25}$;

2. Write as a fraction:

a. $0.\bar{3}$,

e. $0.1\bar{2}$,

i. $7.5\bar{4}$,

b. 0.3 ,

f. $0.\bar{12}$,

j. $1.0\bar{12}$.

c. $0.\bar{7}$,

g. 0.12 ,

d. 0.7 ,

h. $1.12\bar{3}$,

3. Evaluate the following using decimals:

a. $0.36 + \frac{1}{2}$; b. $5.8 - \frac{3}{4}$; c. $\frac{2}{5} : 0.001$; d. $7.2 \cdot \frac{1}{1000}$

4. Evaluate the following using fractions:

a. $\frac{2}{3} + 0.6$; b. $1\frac{1}{6} - 0.5$; c. $0.3 \cdot \frac{5}{9}$; d. $\frac{8}{11} : 0.4$;

5. Compare:

Example: What is greater 31^{11} or 17^{14} ?

We can see that $31 < 32 = 2^5$; $2^4 = 16 < 17$,

$$31^{11} < 32^{11} = (2^5)^{11} = 2^{55}$$

$$(17)^{14} > 16^{14} = (2^4)^{14} = 2^{56}$$

We can write the following:

$$31^{11} < 32^{11} = 2^{55} < 2^{56} = 16^{14} < (17)^{14}$$

$$31^{11} < 17^{14}$$

a. 127^{23} and 513^{18}

b. 9997^{10} and 100003^8

c. 5^{300} and 3^{500}

6. Using distributive property of addition and multiplication factorize the following expressions.

Example:

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$$2a + ax = a \cdot (2 + x)$$

a. $3x + 6$;

b. $cb - y^2c$

c. $x^3 - 5x^2$;

d. $yx + x^2$;

7. Write the following numbers as the power of base 10:

a. 10, 100, 1000, 10000, 100000, 1000000

b. 0.1, 0.01, 0.001, 0.0001, 0.00001, 0.000001

8. Write in the in ascending order

a. $-1.2, -1.2^2, 1.2, (-1.2)^2$

b. $0.15, -0.15, (-0.15)^2, (-0.15)^3$

9. Simplify the expressions:

$$aa^m(-a)^2;$$

$$c^k c(-c^2)c^{k-1}c^3;$$

$$d^n d(-d^{n+1})d^n d^2;$$

$$2x^2y^3 \cdot (-4xy^2);$$

$$2^4 + 2^4;$$

$$2^m + 2^m;$$

$$2^m \cdot 2^m;$$

$$3^2 + 3^2 + 3^2;$$

$$3^k + 3^k + 3^k;$$

$$3^k \cdot 3^k \cdot 3^k;$$