

Simplification - 1

1. By how much is 12% of 24.2 more than 10% of 14.2?

- a. 0.1484
- b. 14.84
- c. 1.484
- d. 2.762

Correct Option: C

Explanation:

$$\text{It is more by } \left(\frac{12}{100} \times 24.2 - \frac{10}{100} \times 14.2 \right) = 2.904 - 1.420 = 1.484$$

2. The value of $4.\overline{12}$ is

- a. $4\frac{11}{99}$
- b. $5\frac{2}{9}$
- c. $4\frac{11}{90}$
- d. None of these

Correct Option: C

Explanation:

$$4.\overline{12} = 4 + 0.\overline{12} = 4 + \frac{12-1}{90} = 4\frac{11}{90}$$

3. The greatest fraction out of $\frac{2}{5}$, $\frac{5}{6}$, $\frac{11}{12}$ and $\frac{7}{8}$ is

- a. $\frac{7}{8}$
- b. $\frac{11}{12}$
- c. $\frac{5}{6}$
- d. $\frac{2}{5}$

Correct Option: B

Explanation:

$$\frac{2}{5} = 0.4; \frac{5}{6} = 0.833; \frac{11}{12} = 0.916 \quad \text{and} \quad \frac{7}{8} = 0.875$$

$\frac{11}{12}$ is largest number.

4. 2.53×0.154 is the same as

- a. 253×0.00154

b. 25.3×1.54

c. 253×0.0154

d. 253×0.154

Correct Option: A

Explanation:

Both contain same number of decimal places.

5. $\frac{0.23 - 0.023}{0.0023 \div 23} = ?$

a. 0.207

b. 207

c. 2070

d. 0.0207

Correct Option: C

Explanation:

$$\frac{0.2070}{\frac{0.0023}{23}} = \frac{0.2070}{0.0001} = \frac{0.2070 \times 10000}{0.0001 \times 10000} = 2070$$

6. $\frac{? - 0.11}{1.6} = 1.6$

a. 2.56

b. 1.76

c. 0.267

d. None of these

Correct Option: D

Explanation:

Let $\frac{x - 0.1}{1.6} = 1.6$, then $x - 0.11 = 1.6 \times 1.6 = 2.56$
 $\Rightarrow x \Rightarrow 2.56 + 0.11 = 2.67$

7. If $1.5x = 0.04y$, then the value of $\frac{y - x}{y + x}$ is

a. $\frac{730}{77}$

b. $\frac{77}{73}$

c. $\frac{77}{7.3}$

d. None of these

Correct Option: B

Explanation:

$$\begin{aligned} \frac{x}{y} &= \frac{0.04}{15} = \frac{2}{75} \\ \frac{y - x}{y + x} &= \frac{1 - x/y}{1 + x/y} = \frac{1 - 2/75}{1 + 2/75} \\ &= \left(\frac{73}{75} \times \frac{75}{77} \right) = \frac{73}{77} \end{aligned}$$

8. $\overline{0.6} + \overline{0.7} + \overline{0.8} + \overline{0.3} = ?$

- a. $2\frac{3}{10}$
- b. $2\frac{33}{10}$
- c. $2\frac{2}{3}$
- d. 2.35

Correct Option: C

Explanation:

$$\overline{0.6} + \overline{0.7} + \overline{0.8} + \overline{0.3} = \left(\frac{6}{9} + \frac{7}{9} + \frac{8}{9} + \frac{3}{9}\right) = \frac{24}{9} = \frac{8}{3} = 2\frac{2}{3}$$

9. The square root of $\frac{0.320 \times 0.081 \times 4.624}{1.5625 \times 0.0289 \times 72.9 \times 64}$ is

- a. 24
- b. 2.4
- c. 0.024
- d. None of these

Correct Option: C

Explanation:

$$\begin{aligned} \text{Given that } \sqrt{\frac{0.320 \times 0.081 \times 4.624}{1.5625 \times 0.0289 \times 72.9 \times 64}} &= \sqrt{\frac{324 \times 81 \times 4624}{15625 \times 289 \times 729 \times 64}} \\ \Rightarrow \sqrt{\frac{18^2 \times 9^2 \times 68^2}{125^2 \times 17^2 \times 9^3 \times 8^2}} &= \frac{18 \times 9 \times 68}{125 \times 17 \times 9 \times 3 \times 8} = \frac{9}{375} = 0.024 \end{aligned}$$

10. Which of the following fractions are in ascending order?

- a. $\frac{16}{19}, \frac{11}{14}, \frac{17}{22}$
- b. $\frac{11}{14}, \frac{16}{19}, \frac{17}{22}$
- c. $\frac{17}{22}, \frac{11}{14}, \frac{16}{19}$
- d. $\frac{16}{19}, \frac{17}{22}, \frac{11}{14}$

Correct Option: C

Explanation:

$$\frac{16}{19} = 0.842; \frac{11}{14} = 0.785$$

$$\text{and } \frac{17}{22} = 0.772$$

$$0.772 < 0.785 < 0.842$$

$$\Rightarrow \frac{17}{22} < \frac{11}{14} < \frac{16}{19}$$

11. $\frac{20 + 8 \times 0.5}{20 - ?} = 12$

- a. 8
- b. 18
- c. 2

d. None of these

Correct Option: B

Explanation:

$$\text{Let } \frac{20 + 8 \times 0.5}{20 - x} = 12 \Rightarrow 20 + 4 = 12(20 - x) \\ \Rightarrow 24 = 240 - 12x \Rightarrow 12x = 216 \Rightarrow x = 18$$

12. $0.15 \div \frac{0.5}{15} = ?$

a. 4.5

b. 45

c. 0.03

d. 0.45

Correct Option: A

Explanation:

$$0.15 \div \frac{0.5}{15} = \frac{15}{100} \div \frac{5}{150} = \frac{15}{100} \times \frac{150}{5} = 4.5$$

13. If $\sqrt{15} = 3.88$, the value of $\sqrt{\frac{5}{3}}$ is

a. 0.43

b. 1.89

c. 1.29

d. 1.63

Correct Option: C

Explanation:

$$\sqrt{\frac{5}{3}} = \sqrt{\frac{5}{3} \times \frac{3}{3}} = \sqrt{\frac{15}{3^2}} = \frac{\sqrt{15}}{3} \\ = \frac{3.88}{3} = 1.29$$

14. If $12276 \div 155 = 79.2$, then the value of $122.76 \div 15.5$ is

a. 7.092

b. 7.92

c. 79.02

d. 79.2

Correct Option: B

Explanation:

$$\frac{122.76}{15.50} = \frac{12276}{1550} = \frac{12276}{155} \times \frac{1}{10} = \frac{79.2}{10} = 7.92$$

15. What decimal of an hour is a second ?

a. 0.0025

b. 0.0256

c. 0.00027

d. 0.000126

Correct Option: C

Explanation:

One second is 3600 part of an hour.

The decimal is $\frac{1}{60 \times 60} = 0.00027$

16. $15.60 \times 0.30 = ?$

a. 4.68

b. 0.458

c. 0.468

d. 0.0468

Correct Option: A

Explanation:

$$\begin{aligned} 1560 \times 30 &= 46800 \\ 15.60 \times 0.30 &= 4.6800 = 4.68 \end{aligned}$$

17. $\frac{3420}{19} = \frac{?}{0.01} \times 7$

a. $\frac{35}{9}$

b. $\frac{18}{7}$

c. $\frac{63}{5}$

d. None of these

Correct Option: D

Explanation:

$$x = \frac{3420}{19} \times \frac{0.01}{7} = 180 \times \frac{1}{700} = \frac{9}{35}$$

18. $\frac{17.28 \div x}{3.6 \times 0.2} = 200$

a. 120

b. 1.20

c. 12

d. 0.12

Correct Option: D

Explanation:

$$\text{Let } \frac{17.28 \div x}{3.6 \times 0.2} = 200$$

$$\Rightarrow \frac{17.28}{x} = 200 \times 3.6 \times 0.2$$

$$\Rightarrow x = \frac{17.28}{200 \times 3.6 \times 0.2} = 0.12$$

19. If $\sqrt[3]{5} = 2.24$ then the value of $\frac{3\sqrt[3]{5}}{2\sqrt[3]{5} - 0.4}$ is

a. 0.168

b. 1.68

c. 1.29

d. 1.63

Correct Option: B

Explanation:

$$\frac{3\sqrt{5}}{2\sqrt{5}-0.48} = \frac{3 \times 2.24}{2 \times 2.24 - 0.48}$$
$$= \frac{6.72}{4.48 - 0.48} = \frac{6.72}{4} = 1.68$$

20. $\sqrt{\frac{0.289}{0.00121}} = ?$

a. $\frac{170}{11}$

b. $\frac{110}{17}$

c. $\frac{1100}{17}$

d. $\frac{17}{11}$

Correct Option: A

Explanation:

$$\sqrt{\frac{0.289}{0.00121}} = \sqrt{\frac{0.289 \times 100000}{0.00121 \times 100000}} = \sqrt{\frac{289 \times 100}{121}} = \frac{170}{11}$$

21. $\left\{ \frac{(0.1)^2 - (0.01)^2}{0.0001} + 1 \right\}$ is equal to

a. 100

b. 101

c. 1010

d. 1101

Correct Option: A

Explanation:

$$\left(\frac{0.01 - 0.0001}{0.0001} + 1 \right) = \left(\frac{0.0099}{0.0001} + 1 \right) = (99 + 1) = 100$$

22. $\frac{0.5 \times 0.5 \times 0.5 + 0.6 \times 0.6 \times 0.6}{0.5 \times 0.5 \times -0.3 + 0.6 \times 0.6} = ?$

a. 0.3

b. 1.1

c. 0.1

d. 0.61

Correct Option: B

Explanation:

$$\frac{(0.5)^3 + (0.6)^3}{(0.5)^2 - 0.5 \times 0.6 + (0.6)^2}$$

$$\left(\frac{p^3 + q^3}{p^2 - pq + q^2}\right) = (p + q)$$

$$=(0.5+0.6)=1.1$$

23. $\frac{(0.87)^3 + (0.13)^3}{(0.87)^2 + (0.13)^2 - 0.87 \times 0.13} = ?$

a. 0.13

b. 0.74

c. 0.87

d. 1

Correct Option: D

Explanation:

Given expression resembles $\frac{p^3 + q^3}{p^2 + q^2 - pq}$

where $p = 0.87$; $q = 0.13$

$$\Rightarrow \frac{p^3 + q^3}{(p^2 + q^2 - pq)} = \frac{(p + q)(p^2 + q^2 - pq)}{(p^2 + q^2 - pq)} \Rightarrow p + q$$

$$=(p+q)=(0.87+0.13)=1$$

24.

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