Mastering Precision: A Practice Set on Approximation for Mathematical Excellence

Welcome to our practice question session on the intriguing topic of approximation!

In this blog, we will delve into a series of thought-provoking exercises designed to sharpen your skills and deepen your understanding of approximation techniques. Get ready to put your mathematical prowess to the test as we explore real-world scenarios where approximation plays a crucial role.

These practice questions will not only challenge you but also provide valuable insights into the practical applications of approximation in various fields. So, grab a pen and paper, and let's embark on this exciting journey of problem-solving and numerical approximation!

Direction: What approximate value will come in the place of question mark (?) in the following question no. 1 to 10?

1. 839 ÷ 23.99 + 523 ÷ ? + 135.94 – 101.03 = 105

1. 18

2. 25

3. 16

4. 15

2. (2120 ÷ √2809) × 12.497 + 3636 ÷ 72 = ?

1. 520

2. 550

3. 400

4. 750

3. $(?)^{0.5}$ = 45.02% of 849.9 - 30.09% of 990.89

1. 7225

2. 622

3. 4225

4. 7575

4. [(8124 + 1312 – 9040) – (19.982 × 13.01)] ÷ 3.975 = ?

1. 34

2. 40

3. 42

4. 37

5. $(2)^{? + 2}$ = (511.79)/(31.89) × (64.03)/(127.95) × 8.01

1. 2

2. 3

3. 5

4. 4

6. 198.14 × 153.95 ÷ 76.77 + 177.94 – 294.77 = ?

1. 265

2. 263

3. 213

4. 279

7. 120.09 ÷ 14.88 × 23.03 – 20.94 × 3.96 = ?

1. 142

2. 100

3. 144

4. 178

8. 11.87% of 1200 - ? × 13.8/√195 × 21.02 = -256

1. 7

2. -19

3. 15

4. 19

9. $(64.01)^2 \times (65)^{1/3} \times (25.99)^2 \div \{2^{11} \times (12.97)^2\} = 2^?$

1. 4

2. 5

3. 2

4. 13

10. 85% of 620.028 + ?% of 480.15 = 70% of 890.135

1. 10%

2. 20%

3. 35%

4. 40%

Solutions:

1. 839 ÷ 23.99 + 523 ÷ ? + 135.94 – 101.03 = 105

Taking the approximate values;

840 ÷ 24 + 523 ÷ ? + 136 – 101 = 105

35 + 523 ÷ ? + 136 – 101 = 105

523 ÷ ? = 105 – 136 + 101 – 35 = 35

? = 523 ÷ 35

? = 14.9 = 15

2. (2120 ÷ √2809) × 12.497 + 3636 ÷ 72 = ?

⇒ (2120 ÷ 53) × 12.497 + 50.5 = ?

Taking the approximate values;

⇒ 40 × 12.5 + 50 = ?

⇒ 500 + 50 = ? ⇒ ? = 550

3. $X^{0.5}$ = 45.02% of 849.9 - 30.09% of 990.89

By approximation,

45.02 as 45, 849.9 as 850, 30.09 as 30, 990.89 as 991

$X^{0.5}$ = 45% of 850 - 30% of 991 = 382.5 - 297.3 = 85.2

taking $X^{0.5}$ = 85 approximately

$X = 85^2 = 7225$

4. [(8124 + 1312 – 9040) – (19.982 × 13.01)] ÷ 3.975 = ?

Taking the approximate values;

⇒ [396 – (20 × 13)] ÷ 4 = ?

⇒ [396 – 260] ÷ 4 = ? ⇒ 136 ÷ 4 = ? ⇒ ? = 34

5. $(2)^{? + 2}$ = (511.79)/(31.89) × (64.03)/(127.95) × 8.01

Taking the approximate values;

$(2)^{? + 2}$ = 512/32 × 64/128 × 8

$(2)^{? + 2}$ = 16 × 1/2 × 8

$(2)^{? + 2}$ = 64

$(2)^{? + 2} = 2^6 \Rightarrow ? = 4$

6. 198.14 × 153.95 ÷ 76.77 + 177.94 – 294.77 = ?

Taking the approximate values;

⇒ 198 × 154 ÷ 77 + 178 – 295 = ?

⇒ 198 × 2 + 178 – 295 = ?

⇒ 396 + 178 – 295 = ? ⇒ ? = 279

7. ? = 120.09 ÷ 14.88 × 23.03 – 20.94 × 3.96

Taking the approximate values;

? = 120 ÷ 15 × 23 – 21 × 4

? = 8 × 23 – 21 × 4

? = 184 – 84 = 100

8. 11.87% of 1200 - ? × 13.8/√195 × 21.02 = -256

Taking the approximate values;

12% of 1200 - ? × 14/√196 × 21 = -256

(12/100) × 1200 - ? × 14/14 × 21 = -256

144 - ? × 1 × 21 = -256

144 + 256 = 21 × ?

399 = 21 × ?

? = 399/21 = 19

9. $(64.01)^2 \times (65)^{1/3} \times (25.99)^2 \div \{2^{11} \times (12.97)^2\} = 2^?$

Taking the approximate values;

$(64)^2 \times (64)^{1/3} \times (26)^2 \div \{2^{11} \times (13)^2\} = 2^?$

$64 \times 64 \times (4^3)^{1/3} \times 26 \times 26 \div 2^{11} \times (13)^2 = 2^?$

$2^6 \times 2^6 \times 4 \times 26 \times 26/2^{11} \times 13 \times 13 = 2^?$

$2^3 \times 2 \times 2 = 2^?$

$2^5 = 2^?$

? = 5

10. 85% of 620.028 + ?% of 480.15 = 70% of 890.135

Taking the approximate values;

85% of 620 + ?% of 480 = 70% of 890

527 + ? × 480 ÷ 100 = 623

? × 4.8 = 623 – 527

? × 4.8 = 96

? = 20