



MATHS

BOOKS - PEARSON IIT JEE

FOUNDATION

SIGNIFICANT FIGURES

Example 8 1

1. Add 632.73 and 24.082.



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Example 8 2

1. Subtract 6.235 cm from 8.4 cm.



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Example 8 3

1. Evalute $(8.253 + 6.7289 - 2.334)$ and correct to 3 significant figures.



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Example 8 4

$$1.3.42 \times 3.2$$



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Example 8 5

$$1.8.635 \div 0.25$$



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Example 8 6

1. A factory manufactured 2678 bolts and this is approximated to the nearest thousands.

Find

(a) the absolute error.

(b) the relative error.



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Example 8 7

1. Number of significant digits of the HCF of 0.5, 0.75 and 1.25 _____.



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Example 8 8

1. There are certain number of students in a class. This is approximated to nearest hundreds. Approximate value is 600 and the

absolute error is 25. If exact value is less than the approximated value, then find the relative error. (Correct to two decimal places).

A. 4.36

B. 3.37

C. 4.35

D. 4.34

Answer:



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Very Short Answer Type Question

1. Number of significant figures in 5.00 is _____.



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2. Number of significant figures in 7.06 is _____.



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3. The number of significant figures in 0.00203040 is _____.



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4. Taking mm as the unit, the number of significant figures in 5.0 cm is _____



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5. Taking 10^3 as the unit, the number of significant figures in 1000 is _____.



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6. Value of 0.072 correct to 1 significant figure is _____.



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7. 378.4629 kg approximated to the nearest kg is _____.



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8. 1638 is approximated to the nearest hundred.

Absolute error = _____.



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9. The difference between exact value and approximated value is _____.



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10. The ratio of absolute error to the exact value is _____.



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Short Answer Type Question

1. 81.75 when expressed, correct to the nearest integer would be _____.



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2. The unit of measurement is cm. If the measure is 5.00 metres, then find the number of significant figures in the measurement.



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3. The unit of measurement is litre. If the measure is 4.000 kilolitres, then find the number of significant figures in the measurement.



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4. Write the value of each of the following, correct to 4 significant figures.

(i) 343.92

(ii) 0.0010829

(iii) 76.0065



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5. The unit of measurement is mm. If the measure is 4.2 cm, then find the number of significant figures in the measurement.



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6. 5268.75 when expressed correct to the nearest thousand would be _____.

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7. Evaluate

(i) $6.02 + 3.7602 - 0.9327$, correct to four significant figures.

(ii) $0.529 - 42.78 + 70.062$ correct to three significant figures.



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8. Find the value of $\sqrt{5}$, correct to two decimal places. Use this value to evaluate $\frac{3}{\sqrt{5}}$, correct to two significant figures.



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9. Express the fraction $\frac{7.566}{0.00600}$ in the form of $m \times 10^3$. Also find the expression correct to three significant figures.

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10. By rationalizing the denominator, evaluate

$\frac{1}{3 + \sqrt{2}}$ correct to two significant figures.

Given that $\sqrt{2} = 1.414$.

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Level 1

1. The value of 56.0023 corrected to four significant figures is

A. 56.00

B. 56.01

C. 56.02

D. 56.03

Answer: A



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2. The number of significant figures in 0.00250 is

A. 2

B. 3

C. 6

D. 5

Answer: B



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3. The value of 2.00885 corrected to four significant figures is _____.

A. 2.009

B. 2.008

C. 2.010

D. 2.018

Answer: A



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4. The length of object measured to the nearest centimetre is 120 cm. If the length is expressed in mm, then the number of significant figures is

A. 4

B. 2

C. 3

D. 5

Answer: C



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5. Find the sum of the significant digits for the LCM of 0.12, 0.18 and 0.24.

A. 7

B. 8

C. 6

D. 9

Answer: D



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6. Find the sum $0.23 + 0.234 + 0.2345$ corrected to three significant figures.

A. 0.697

B. 0.677

C. 0.699

D. 0.688

Answer: C



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7. The value obtained when $\frac{22}{7}$ rounded off to five significant figures is _____.

A. 3.1427

B. 3.1428

C. 3.1426

D. 3.1429

Answer: D



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8. If $234.a42b6 \approx 234.a43$, then what can be the possible value of b ?

A. $5 < b$

B. $5 < b < 10$

C. $1 < b < 9$

D. None of these

Answer: B



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9. The unit of measurement is one hundredth of 1 cm. If the measure is 0.09 cm, the number of significant figures is _____ .

A. 1

B. 2

C. 3

D. 4

Answer: A



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10. If there are three significant digits in $0.abc$, then what are the possible values of a , b and c ?

A. $a < 10$, $b \neq 0$ and $c \neq 0$

B. $a = 0$, $b = 0$ and $0 < c < 10$

C. Cannot be determined

D. None of these

Answer: C



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1. The number of significant digits of 8.65000×10^{50} is

A. 6

B. 3

C. 50

D. 55

Answer: A



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2. If the number of significant digits of $abc \times 10^{-(10)}$ is 1, then which of the following holds good?

A. $a = 0, b \neq 0, c = 0$

B. $a = 0, b = 0$ and $0 < c < 10$

C. cannot be determined

D. None of these

Answer: B



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3. The number of zeros before the first significant digit of $\frac{1}{3125}$ is _____.

A. 1

B. 2

C. 3

D. 4

Answer: C



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4. The value of $\sqrt{115}$ corrected to four significant figures is _____

A. 10.72

B. 10.73

C. 10.74`

D. 10.75

Answer: A



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5. There are 25425 people in a town. This is approximated to the nearest thousands. Calculate the relative error (approximately).

A. 0.01 %

B. 0.3 %

C. 1.67 %

D. 2.26 %

Answer: C



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6. After simplification, the first significant digit of the fraction $\frac{0.12345}{125}$ is _____.

A. 6

B. 7

C. 8

D. 9

Answer: D



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7. A trader weighs 8.99 quintals of iron rods with the help of kilogram weights. Find the smallest possible limiting relative error.

A. 1.1 %

B. 0.11 %

C. 12.5 %

D. None of these

Answer: B



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8. The value of $\frac{12}{\sqrt{5} - 1}$ corrected to three significant digits is _____. ($\sqrt{5} = 2.2361$)

A. 9.71

B. 9.75

C. 9.81

D. 9.85

Answer: A



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9. The value of $\frac{1}{5 - \sqrt{3}}$ correct to two significant figures [given that $\sqrt{3} = 1.732$] is _____.

A. 0.031

B. 0.30

C. 0.32

D. 0.33

Answer: A



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10. A pole is measured with a scale marked in centimetres. If the length of the pole is 16.52 m, then find the smallest possible limiting absolute error.

A. 48 cm

B. 52 cm

C. 2 cm

D. 1 cm

Answer: D



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11. Evaluate $3.768 - 1.876$ corrected to two significant figures.

A. 1.89

B. 1.9

C. 2.89

D. 1.98

Answer: B



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12. When a number is approximated to the nearest hundreds, the approximated value is 600 and absolute error is 24. Then the exact number is _____.

A. 64

B. 548

C. 576

D. Either (a) or (c)

Answer: D



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13. The distance between two places is 2000 km, correct to nearest thousand km. Then number of significant figures is _____.

A. 4

B. 3

C. 2

D. 1

Answer: D



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14. The height of a person is 6.0 ft, correct to nearest foot (in integer) then number of significant figures is _____.

A. 2

B. 1

C. 3

D. cannot be determined

Answer: B



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15. Number of significant figures in the square root of 42.25 is _____.

A. 4

B. 3

C. 2

D. 1

Answer: C



16. Evaluate $(0.304)(0.12)$ corrected to four significant figures.

A. 0.03648

B. 0.3648

C. 0.0365

D. None of these

Answer: A



17. Which of the following numbers has two significant figures?

A. 24

B. 240

C. 2400

D. All of these

Answer: D



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18. The length of a pole is 42.3 m. Find the number of significant figures, when its length is expressed in kilometres.

A. 2

B. 3

C. 1

D. 4

Answer: B



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19. Number of significant figures in 3.0 is _____.

A. 1

B. 3

C. 4

D. 2

Answer: D



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20. Evaluate $\frac{3}{7}$ correct to three decimal places.

A. 0.428

B. 0.429

C. 0.431

D. 0.421

Answer: B



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21. Evaluate $\frac{15}{\sqrt{2} - 1}$ correct to four significant digits (Take $\sqrt{2} = 1.414$).

A. 32.63

B. 32.36

C. 36.23

D. 36.32

Answer: C



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22. Evaluate $\sqrt{80}$ correct to three significant digits.

A. 8.944

B. 8.94

C. 8.95

D. 8.945

Answer: B



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23. After simplification, numbers of zeroes before first significant digit of $\left(\frac{0.03125}{25}\right)$ is _____.

A. 4

B. 3

C. 2

D. 1

Answer: C



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24. The distance between two places is measured with a scale marked in metres. If the distance is 2.013 m, then find the number of significant digits in it.

A. 1

B. 2

C. 3

D. 4

Answer: D



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25. There are certain number of students in a class. This is approximated to nearest hundreds. Approximate value is 600 and the absolute error is 25. If exact value is less than the approximated value, then find the relative error. (Correct to two decimal places).

A. 4%

B. 4.5%

C. 5%

D. 5.5 %

Answer: A



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26. Evaluate $\frac{1}{3 + \sqrt{7}}$ correct to one significant digit

(Take $\sqrt{7} = 2.646$).

A. 0.2

B. 0.1

C. 0.3

D. 0.02

Answer: A



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27. Evaluate 2.304×23.05 correct to four significant figures.

A. 53.1072

B. 53.11

C. 53.1172

D. 53.12

Answer: B



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28. If number of significant digits of $a \times 3a$ is 3, then which of the following is true? (where a is whole number)

A. $a=0$

B. $0 \leq a \leq 9$

C. $0 < a < 9$

D. $0 < a \leq 9$

Answer: D



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