MATHS

BOOKS - NAVNEET PUBLICATION

ALGEBRAIC EXPRESSION AND OPERATIONS ON THEM

Question Bank

1. Classify the following algebraic expression as monomials, binomials, trinomials, and

polynomial :

(i) 7x (ii) 5y-7z (iii) $3x^3 - 5x^2 - 11$ (iv) $1 - 8a - 7a^2 - 7a^3$ (v) 5m - 3 (vi) a (vii) 4 (viii) $3y^2 - 7y + 5$

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2. Add :

9p + 16q, 13p + 2q

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3. Add :

2a + 6b + 8c, 16a + 13c + 18b

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4. Add :

$13x^2 - 12y^2, 6x^2 - 8y^2$

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5. Add :

$17a^2b^2 + 16c, 28c - 28a^2b^2$

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6. Add :

$3y^210y + 16, 2y - 7$

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7. Add :

$-3y^2 + 10y - 16, 7y^2 + 8$

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8. Subtract the second expression from the first one.

(4xy - 9z), (3xy - 16z)

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9. Subtract the second expression from the first one.

(5x + 4y + 7z), (x + 2y + 3z)

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10. Subtract the second expression from the first one.

$\left(14x^2 + 8xy + 3y^2\right), \left(26x^2 - 8xy - 17y^2\right)$

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11. Subtract the second expression from the first one.

$\left(6x^2 + 7xy + 16y^2\right), \left(16x^2 - 17xy\right)$

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12. Subtract the second expression from the first one.

(4x + 16z), (19y - 14z + 16x)

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13. Multiply 4x by 7y

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14. Multiply $7x^2$ by $8y^2$

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15. Multiplying a binomial by a monomial

Multiply (3x + 2) by 2x

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16. Multiplying a binomial by a monomial

Multiply 6z by (5x-7y)

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17. Multiplying a binomial by a monomial

Multiply $4x + 7y$ by $3x + 2y$

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18. Multiply

$16xy \times 18xy$

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19. Multiply

$23xy^2 \times 4yz^2$

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20. Multiply

$(12a + 17b) \times 4c$

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21. Multiply

$(4x + 5y) \times (9x + 7y)$

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22. The length of a rectangle is $(8x + 5)$ cm and its breadth is $(5x + 3)$ cm. Find its area.

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23. Solve the following equations :

$x + 7 = 4$

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24. Solve the following equations :

$4p = 12$

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25. Solve the following equations :

$m - 5 = 4$

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26. Solve the following equations :

$\frac{t}{3} = 6$

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27. Simplify (3x - 11y) - (17x + 13y) and choose the right answer.

A. 7x - 12y

B. - 14x - 54y

C. -3(5x + 4y)

D. -2(7x + 12y)

Answer: D

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28. The product of $(23x^2y^3z)$ and (-15x^3yz^2)` is...,

A. $-345x^5y^4z^3$

B. $345x^2y^3z^5$

C. $145x^3y^2z$

D. $170x^3y^2z^3$

Answer: A

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29. Solve the following equations :

$4x + \frac{1}{2} = \frac{9}{2}$

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30. Solve the following equations :

$10 = 2y + 5$

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31. Solve the following equations :

$5m - 4 = 1$

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32. Solve the following equations :

$6x - 1 = 3x + 8$

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33. Solve the following equations :

$2(x-4) = 4x + 2$

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34. Solve the following equations :

$5(x + 1) = 74$

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35. Rakesh's age is 5 years less than Saina's. The sum of their ages is 27. How old are they ?

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36. In a grove, 60 more saplings of Jambul were planted than those of Ashok if their are altogether 200 saplings, find the saplings of Jambul.

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37. Shubhangi has twice as many 20-rupee notes as she has 50 rupee notes. Altogether, she has `

37. 2700. How many 50-rupee notes does she have ?

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38. Virat made twice as many runs as Rohit. The total of their scores is 2 less than a double century. How many runs did each of them make ?

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39. State the coefficient in the term $256x^2y^2$.

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40. The coefficient of m is $\frac{3}{4}$. What is that term ?

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41. Which of the following are like terms ?

$3x^2y^2$, 3xy, $5x^3y^3$, $x^2y^3y^3$, 7xy.

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42. What is the sum of 3x and 5y ?

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43. Which expression should be added to

4m - 7n - to get the expression zero ?

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44. Solve the following :

$(-16) \times (-5)$

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45. Solve the following :

$72 \div (-12)$

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46. Solve the following :

$(-24) \times (2)$

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47. Solve the following :

$125 \div 5$

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48. Solve the following :

$(-104) \div (-13)$

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49. Solve the following :

25 x (-4)

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50. Find the HCF and LCM by prime factorization :

75, 135.

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51. Find the HCF and LCM by prime factorization :

114, 76.

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52. Find the HCF and LCM by prime factorization :

153, 187.

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53. Find the HCF and LCM by prime factorization :

32, 24, 48

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54. Simplify :

To simplify find the HCF of the numerator

and the denominator.

$$\frac{322}{391}$$

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55. Simplify :

To simplify find the HCF of the numerator

and the denominator.

$$\frac{247}{209}$$

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56. Simplify :

To simplify find the HCF of the numerator and the denominator.

$$\frac{117}{156}$$

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57. Find the square root of the following numbers :

784

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58. Find the square root of the following numbers :

225

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59. Find the square root of the following numbers :

1296

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60. Find the square root of the following numbers :

2025

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61. Find the square root of the following numbers :

256

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62. Draw a join bar for the given data

There are four polling booths for a certain election. The numbers of men and women who cast their vote at each booth is given in the table below. Draw a joint bar graph for this data.

Polling booths	Navodaya Vidyalaya	Vidyaniketan School	City High School	Eklavya School
Women	500	520	680	800
Men	440	640	760	600

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63. Simplify the expressions :

$45 \div 5 + 20 \times 4 - 12$

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64. Simplify the expressions :

$(38 - 8) \times 2 \div 5 + 13$

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65. Simplify the expressions :

$\frac{5}{3} + \frac{4}{7} \div \frac{32}{21}$

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66. Simplify the expressions :

$3 \times \{4[85 + 5 - (15 \div 30] + 2\}$

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67. Solve :

$$\frac{5}{12} + \frac{7}{16}$$

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68. Solve :

$$3\frac{2}{5} - 2\frac{1}{4}$$

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69. Solve :

$$\frac{12}{5} \times \frac{-10}{3}$$

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70. Solve :

$$4\frac{3}{8} \div \frac{25}{18}$$

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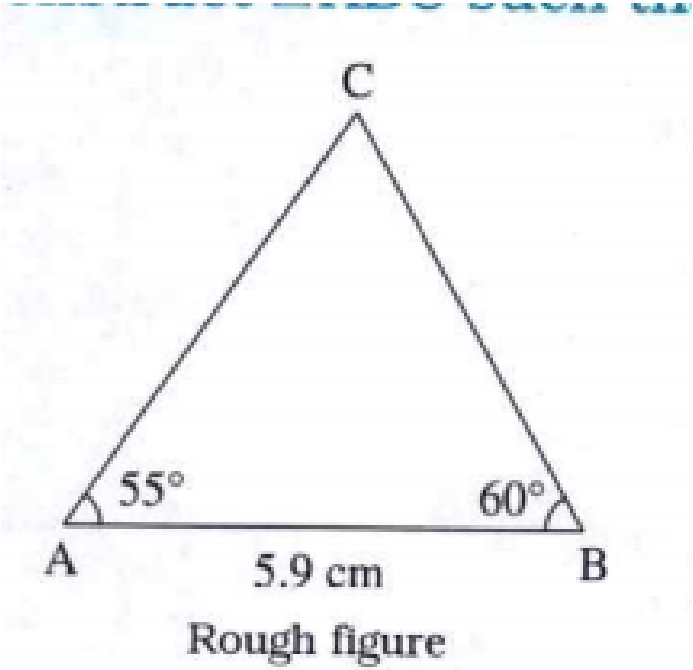
71. Construct δ ABC such that $m\angle A = 55^\circ$, $m\angle B = 60^\circ$ and l (AB) = 5.9 cm.



Rough figure

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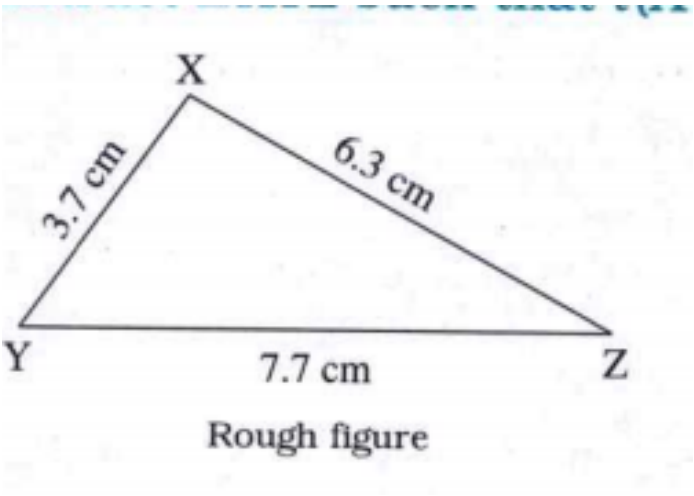
72. Construct δ XYZ such l (XY) = 3. 7 cm, l (YZ) = 7. 7 cm l (XY) = 6. 3.



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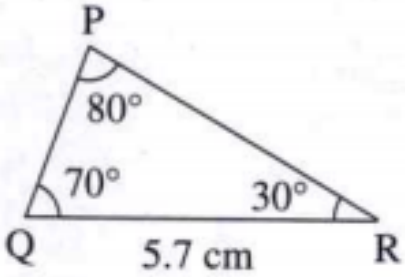
73. Construct δ PQR such that $m\angle P$ = 80°, $m\angle Q$ = 70°, l (QR) = 5. 7 cm.

We are given l (QR). So we must have measure of $\angle Q$ and $\angle R$.

$$m\angle P + m\angle Q + m\angle R = 180^\circ$$
$$\therefore 80^\circ + 70^\circ + m\angle R = 180^\circ$$
$$\therefore m\angle R = 180^\circ - 80^\circ - 70^\circ$$
$$\therefore m\angle R = 30^\circ$$



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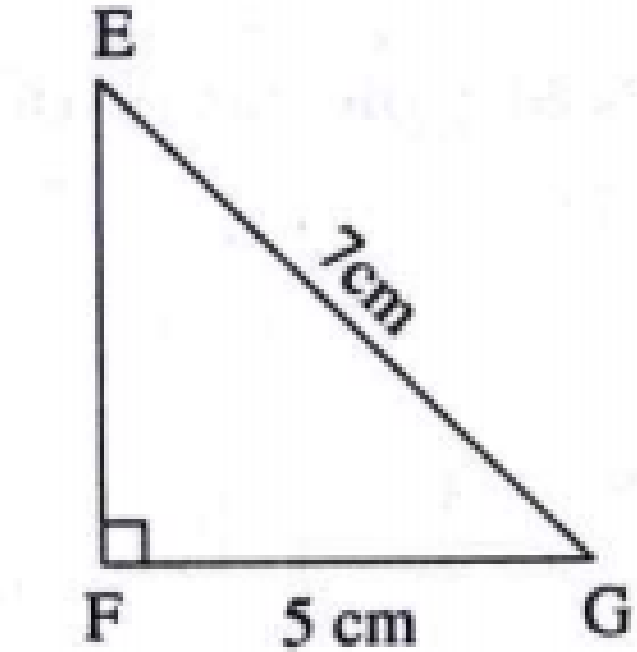
74. Construct Δ EFG from the given measures. l (FG) = 5 cm, $m\angle EFG = 90^\circ$ l (EG) = 7 cm.



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75. In Δ LMN, l (LM) = 6.2 cm. $m\angle$ LMN = 60°, l (MN) = 4 cm. Construct Δ LMN.

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76. Find the measures of the complementary angles of the following angles :

35°

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77. Find the measures of the complementary angles of the following angles :

a°

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78. Find the measures of the complementary angles of the following

angles :

22°

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79. Find the measures of the complementary angles of the following angles :

$(40 - x)^\circ$

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80. Find the measures of the supplements of the following angle :

111°

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81. Find the measures of the supplements of the following angle :

47°

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82. Find the measures of the supplements of the following angle :

180°

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83. Find the measures of the supplements of the following angle :

$(90 - x)^\circ$

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84. Draw the following figures :

A pair of adjacent angles.

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85. Draw the following figures :

Supplementary angle which are not adjacent angles.

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86. Draw the following figures :

A pair of adjacent complementary angles.

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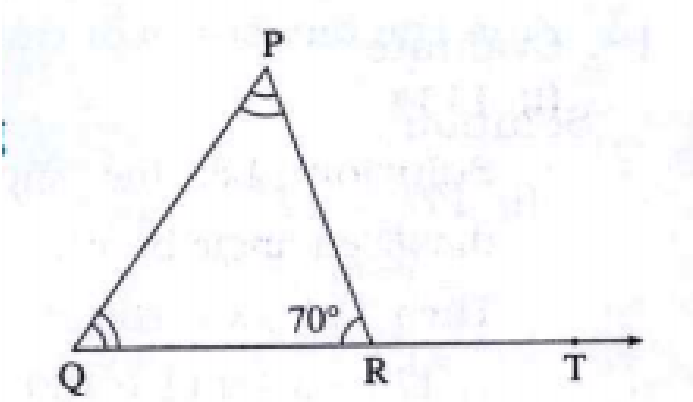
87. In Δ PQR, the measure of $\angle P$ and $\angle Q$ are equal. m $\angle$ PRQ = 70° Find the measures of the following angles.

$\angle Q$



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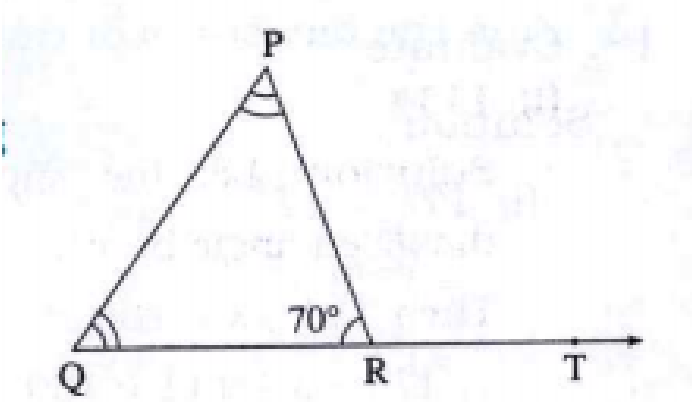
88. In Δ PQR, the measure of $\angle P$ and $\angle Q$ are equal. m $\angle$ PRQ = 70° Find the measures of the following angles.

$\angle P$.



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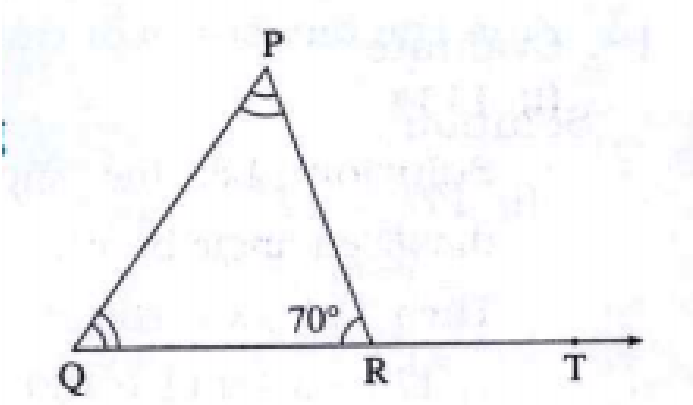
89. In Δ PQR, the measure of $\angle P$ and $\angle Q$ are equal. m $\angle$ PRQ = 70° Find the measures of the following angles.

$\angle Q$



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90. Simplify :

$5^4 \times 5^3$

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91. Simplify :

$$\left(\frac{2}{3}\right)^{6} \div \left(\frac{2}{3}\right)^{9}$$

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92. Simplify :

$$\left(\frac{7}{2}\right)^{8} \times \left(\frac{7}{2}\right)^{-6}$$

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93. Simplify :

$$\left(\frac{4}{5}\right)^2 \div \left(\frac{5}{4}\right)$$

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94. Evaluate :

$$17^{16} \div 17^{16}$$

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95. Evaluate :

10^{-3}

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96. Evaluate :

$\left(2^3\right)^2$

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97. Evaluate :

$4^6 \times 4^{-4}$

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98. Solve :

(6a - 5b - 8c) + (15b + 2a - 5c)

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99. Solve :

$(3x + 2y)(7x - 8y)$

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100. Solve :

$(7m - 5n) - (-4n - 11m)$

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101. Solve :

$(11m - 12n + 3p) - (9m + 7n - 8p)$

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102. Solve the following equations :

$4(x + 12) = 8$

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103. Solve the following equations :

$3y + 4 = 5y - 6$

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104. Multiple choice Questions :

The three angle bisectors of a triangle are concurrent. Their point of concurrence is called the ...

A. circumcentre

B. apex

C. incentre

D. point of intersection

Answer: C

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105. Multiple choice Questions :

$\left[\left(\frac{3}{7}\right)^{-3}\right]^{4}$ = ...

A. `(3/7)^(-7)

B. $\left(\frac{3}{7}\right)^{-10}$

C. $\left(\frac{7}{3}\right)^{12}$

D. $\left(\frac{3}{2}\right)^{20}$

Answer: C

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106. Multiple choice Questions :

The simplest of $5 \div \left(\frac{3}{2}\right) - \frac{1}{3}$ is .....

A. 3

B. 5

C. 0

D. 4

Answer: A

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107. Multiple choice Questions :

The solution of the equation $3x - \frac{1}{2} = \frac{5}{2} + x$ is .....

A. $\frac{5}{3}$

B. $\frac{7}{2}$

C. 4

D. $\frac{3}{2}$

Answer: D

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108. Multiple choice Questions :

Which of the following expressions has the value 37 ?

A. $10 \times 3 + (5 + 2)$

B. $10 \times 4 + (5 - 3)$

C. $8 \times 4 + 3$

D. $(9 \times 3) + 2$

Answer: A

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