

NAVODAYA VIDYALAYA SAMITI
HALF YEARLY EXAM (2021-22)
SUBJECT: MATHEMATICS

Answer key
Class-VII

1. 30⁰c
2. 6⁰c
3. 5⁰c
4. Lahulspiti
5. -3⁰c
6. 20.2 km
7. 21.1 km
8. Ayub
9. 0.9 km
10. 41.3 km
11. Adjacent angles
12. Vertically opposite angles
13. Linear Pairs
14. Supplementary angles
15. None of these
16. Cats
17. 8
18. 5
19. 10
20. 2 pets
21. 22
22. 10
23. 37
24. 8
25. 3n+1
26. 8
27. 8n
28. 100
29. 8n+4
30. 12
31. 3
32. 1
33. 5
34. 8
35. 7
36. $-1\frac{2}{3}$

37. $-1\frac{1}{3}$

38. $2\frac{1}{3}$

39. $2\frac{2}{3}$

40. 1

41. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)

42. (d) Assertion (A) is false but reason (R) is true.

43. (c) Assertion (A) is true but reason (R) is false.

44. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)

45. (d) Assertion (A) is false but reason (R) is true.

46. (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A)

47. (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)

48. (d) Assertion (A) is false but reason (R) is true.

49. $[90 - (-54)] \div [12 - 3 \times (-2)]$
= $144 \div (12+6)$
= $144 \div 18$
= 8

50. Portion of his property will be given to son = $\frac{2}{5}$

Portion of his property will be given to daughter = $\frac{2}{5}$

Total land will be given to both daughter and son = $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$

Portion of land will be getting by his servant = $1 - \frac{4}{5}$

= $\frac{1}{5}$

51. Range = 4
Mean = $\frac{34}{9}$
Mode = 2
Median = 3

52. Since l//m

$$x + 2x = 180^\circ \text{ (Interior angles on the same side of the transversal)}$$

$$3x = 180^\circ$$

$$x = 60^\circ$$

53. Product of two numbers = 2.0016

One number = 0.72

Other number = $2.0016 \div 0.72$

$$\begin{aligned} &= \frac{2.0016}{0.72} = \frac{20016}{10000} \times \frac{100}{72} \\ &= \frac{139}{50} = \frac{139 \times 2}{50 \times 2} = \frac{278}{100} = 2.78 \end{aligned}$$

Hence, the required number = 2.78.

54. $(2y + 10)^\circ + 50^\circ + 40^\circ + 130^\circ = 360^\circ$ (Sum of angles round at a point)

$$\Rightarrow 2y + 10 + 220 = 360$$

$$\Rightarrow 2y + 230 = 360$$

$$\Rightarrow 2y = 360 - 230$$

$$\Rightarrow 2y = 130$$

$$\Rightarrow y = 65$$

Thus, $y = 65^\circ$

55. $(30xy + 12y - 14x) - (24xy - 10y - 18x)$

$$= 30xy + 12y - 14x - 24xy + 10y + 18x$$

$$= 30xy - 24xy + 12y + 10y - 14x + 18x$$

$$= 6xy + 22y + 4x$$

56. (i) -6 is monomial

(ii) $-5 + x$ is binomial

(iii) $6x^2 + 5x - 3$ is trinomial

(iv) $z^2 + z$ is binomial

57. Let the required number be x .

$$7x = 13x - 12$$

$$\Rightarrow 7x - 13x = -12 \text{ (Transposing } 13x \text{ to LHS)}$$

$$\Rightarrow -6x = -12$$

$$\Rightarrow x = 2$$

Thus, the required number is 2.

58. (a) Let the number be x .

$$\text{Sum of } 4x \text{ and } 5 = 4x + 5$$

The sum is $5x$.

The equation is $4x + 5 = 5x$ as required.

(b) Let the number be x .

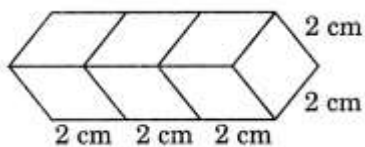
$$\frac{1}{4}x = 5 + 2$$

$$\Rightarrow \frac{1}{4}x = 7 \text{ as required.}$$

59. Length of the resulting cuboid = $2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} = 6 \text{ cm}$

Breadth = 2 cm

Height = 2 cm



Hence the required dimensions = $6 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$.

60. Let t

$$\therefore x \times \left(\frac{-4}{15}\right) = -\frac{9}{16}$$

$$\Rightarrow x = -\frac{9}{16} \div \left(-\frac{4}{15}\right) = -\frac{9}{16} \times \frac{15}{-4}$$

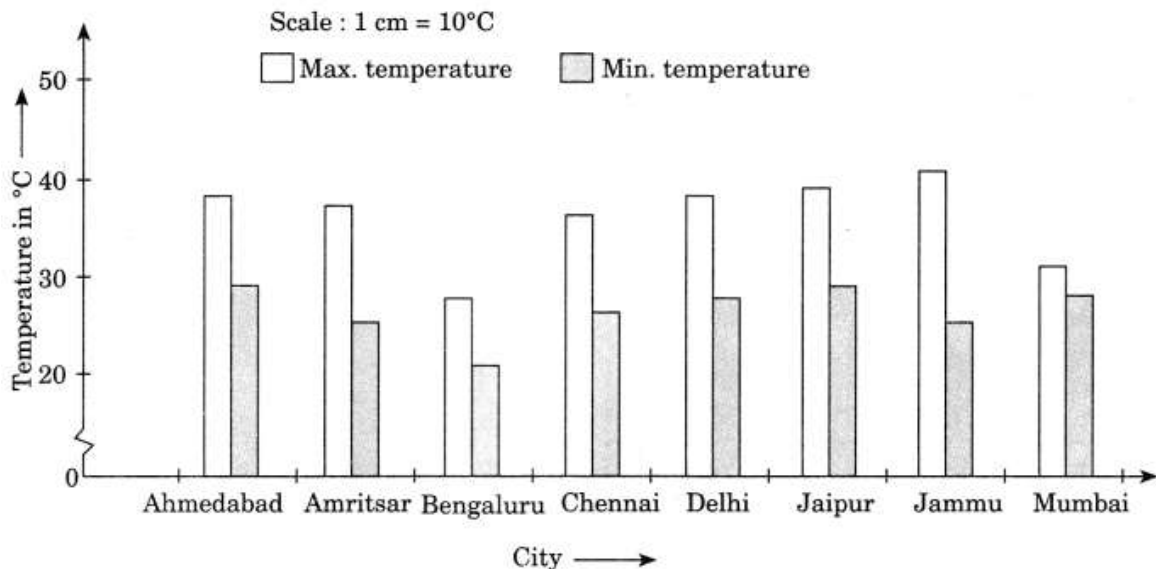
$$\left[\text{Reciprocal of } -\frac{4}{15} = \frac{15}{-4} \right]$$

$$= \frac{-9 \times 15}{-16 \times 4} = \frac{135}{64} = 2\frac{7}{64}$$

Hence, the required rational number = $2\frac{7}{64}$.

61. i. Radhika got 10 correct answer, So Marks obtained from them = $10 * 5 = 50$ Mark
 But he got 30 total mark, so $50 - 30 = 20$ marks, she got for negative marking
 So, incorrect question attempted = $20/2 = 10$
 ii. Jay got 4 correct answer, So Marks obtained from them = $4 * 5 = 20$ Mark
 But he got -12 total marks, so $10 - (-12) = 32$ marks, she got for negative marking
 So, incorrect question attempted = $32/2 = 16$

62. Double bar graph:



- (i) Jammu has the largest difference between the maximum and minimum temperature
 $= 41^{\circ}\text{C} - 26^{\circ}\text{C} = 15^{\circ}\text{C}$
 (ii) Hottest city is Jammu with 41°C temperature and coldest city is Bengaluru with 21°C temperature.