

GRAND TEST

SYLLABUS: EXPONENTS AND POWERS, DIRECT AND INVERSE VARIATION, FACTORISATION, LINEAR EQUATION IN ONE VARIABLE, UNDERSTANDING QUADRILATERALS & ALGEBRA

- All Time allotted is **2 hours**. The **Maximum Marks** are **60**.

1. (a) (a) Simplify $3x(4x - 5) + 3$ and find its values for (i) $x = 3$ (ii) $x = \frac{1}{2}$.

(b) Subtract: $3l(1 - 4m + 5n)$ from $4l(10n - 3m + 2l)$

2. Multiply the monomials: (a) $\left(\frac{3}{4}a^2 + 3b^2\right)$ and $4\left(a^2 - \frac{2}{3}b^2\right)$

Simplify: (b) $(a + b)(c - d) + (a - b)(c + d) + 2(ac + bd)$

3. Simplify: (a) $(2.5p - 1.5q)^2 - (1.5 - 2.5q)^2$

OR

Use suitable identity to find the product: (b) $\left(\frac{x}{2} + \frac{3y}{4}\right)\left(\frac{x}{2} + \frac{3y}{4}\right)$

4. Show that: (a) $(3x + 7)^2 - 84x = (3x - 7)^2$

OR

(b) $\left(\frac{4}{3}m - \frac{3}{4}n\right)^2 + 2mn = \frac{16}{9}m^2 + \frac{9}{16}n^2$

5. Using identities evaluate: (a) 71^2

OR

Using $(x + a)(x + b) = x^2 + (a + b)x + ab$, find 9.7×9.8

6. Change into standard form: (a) 0.0000000000085

(b) 0.00000000837

Change into usual form: (a) 3.02×10^{-6}

(b) 3.61492×10^6

7. In a stack there are 5 books each of thickness 20mm and 5 paper sheets each of thickness 0.016mm. what is the total thickness of the stack.

8. Simplify: $\frac{3^{-5} \times 10^{-5} \times 125}{5^{-7} \times 6^{-5}}$

9. Find the value of m for which $5^m \div 5^{-3} = 5^5$

10. Evaluate : $\left\{\left(\frac{1}{3}\right)^{-1} \left(\frac{1}{4}\right)^{-1}\right\}^{-1}$

11. The cost of 5 metres of a particular quality of cloth is Rs 210. Tabulate the cost of 2, 4, 10 and 13 meters of cloth of the same type.

12. Suppose 2 kg of sugar contains 9×10^6 crystals. How many sugar crystals are there in (i) 5 kg of sugar? (ii) 1.2 kg of sugar?

13. There are 100 students in a hostel. Food provision for them is for 20 days. How long will these provisions last, if 25 more students join the group?

14. 6 pipes are required to fill a tank in 1 hour 20 minutes. How long will take if only 5 pipes of the same type are used?

15. A loaded truck travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?

16. Factorise: (a) $x^2 + xy + 8x + 8y$

(b) $15pq + 15 + 9q + 25p$

17. Factorise the expression:

(a) $(lm + l) + m + 1$

(b) $16x^5 - 144x^3$

18. Factorise the expression and divide them:

(a) $39y^3(50y^2 - 98) \div 26y^2(5y + 7)$

OR (b) $12xy(9x^2 - 16y^2) \div 4xy(3x + 4y)$

19. Divide as directed:

(a) $52pqr(p + q)(q + r)(r + p) \div 104pq(q + r)(r + p)$

OR

(b) $x(x+1)(x+2)(x+3) \div x(x+1)$

20. Divide the given polynomial by the given monomial:

(a) $8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$

OR

(b) $(p^3q^6 - p^6q^3) \div p^3q^3$

21. Solve the following equation:

(a) $1.6 = \frac{y}{1.5}$

(b) $\frac{t}{5} = 10$

22. Solve the equations and check your results:

(a) $3x = 2x + 18$

(b) $2y + \frac{5}{3} = \frac{26}{3} - y$

23. The sum of three consecutive multiples of 11 is 363. Find these multiples.

24. The present age of Sahil's mother is three times the present age of Sahil. After 5 years their ages will add to 6 years. Find their present ages.

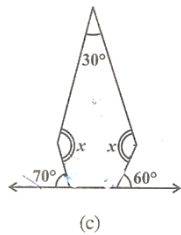
25. Sum of the digits of a two-digit number is 9. When we interchange the digits, it is found that the resulting new number is greater than the original number by 27. What is the two digit number?

OR

Half of a herd of deer are grazing in the field and three fourths of the remaining are playing nearby. The rest 9 are drinking water from the pond. Find the number of deer in the herd.

Understanding Quadrilaterals

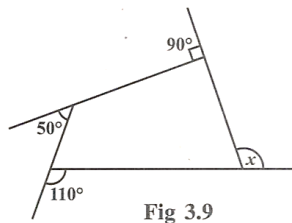
26. Find the angle measure x in the following figures.



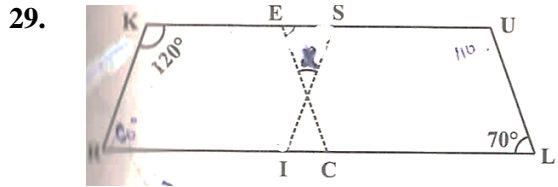
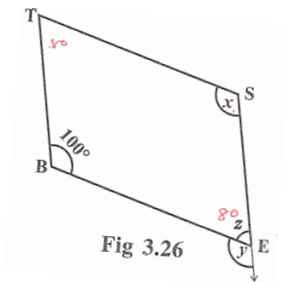
OR

Find the number of sides of a regular polygon whose each exterior angle has a measure of 45° .

27. Find measure x in Fig 3.9.

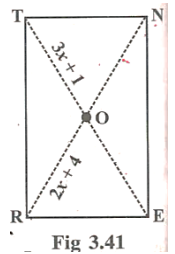


28. In Fig 3.26, BEST is a parallelogram. Find the values x, y and z.



In the above figure both RISK and CLUE are parallelograms. Find the value of x .

30. RENT is a rectangle (Fig 3.41). Its diagonals meet at O. Find x , if $OR = 2x + 4$ and $OT = 3x + 1$.



OR

Explain how a square is.

(i) a quadrilateral

(ii) a parallelogram

(iii) a rhombus

(iv) a rectangle