

Chapter – Squares & Square roots

1. Simplify;

a. $\sqrt{1.44} \times \sqrt{6.25}$ b. $\sqrt{6.25} \times \sqrt{7.29}$ c. $\sqrt{1000} \times \sqrt{250}$

2. Find the smallest number by which 588 must be multiplied so that it becomes a perfect square.

3. Find the smallest number by which 396 must be divided so that it becomes a perfect square.

4. Find the square root of the following by Prime Factorization Method;

a. 1024 b. 15625

5. Find the square root of 0.0064

6. Find the greatest 3 digit number which is a perfect square.

7. Find the value of x if $\sqrt{1 + \frac{x}{12}} = 1 + x/12$.

8. Find the square root of 2.5 correct to two places of decimal.

9. Find the least number of 4 digits which is a perfect square.

10. Find the least number which must be subtracted from 18265 to make it a perfect square. Also find the square root of the number so obtained.

11. Area of a square field is equal to the area of a rectangle whose length is 18cm and breadth is 15cm. Find the length of the side of square field.

12. Write the least number of 6 digits which is a perfect square. Also find the square root of the number so obtained.

13. Area of a square field is 3136m². A rectangular field whose length is thrice its breadth, has its perimeter equal to the perimeter of square field. Find the area of rectangular field.

DAV International School, Amritsar

Chapter:- Algebraic Identities

Class:- VIII

Subject:- Mathematics

1. If $x - \frac{1}{x} = 5$, Find the value of $x^4 + \frac{1}{x^4}$
2. Evaluate Using Identity $95 \times 105 = (125 + 100)(125 - 100)$
3. If $a + b + c = 12$ and $a^2 + b^2 + c^2 = 66$, find the value of $ab + bc + ca$
4. If $x + y + z = 4$ and $x^2 + y^2 + z^2 = 58$, find the value of $xy + yz + zx$
5. Evaluate using Identity $(100 - 5)(100 + 7) = 96^2$
6. Evaluate Using Identity, A.) $\frac{2 \times 2 \times 2 + 2 \times 2 \times 3 + 2 \times 3 \times 3 + 3 \times 3 \times 3}{2^2 \times 3^3}$ B.) $12.4 \times 11.6 - 95 \times 105$
7. If $3x + 4y = 7$ and $xy = 2$, then find the value of $9x^2 - 16y^2$ and value of $3x^2 + 16y^2$
8. Factorise A.) $4x^2 + 9y^2 - 25z^2 + 12xy$
 B.) $p^2 + pq + \frac{q^2}{4} - 4xy + 6yz - 12xz$
 C.) $4x^2 - y^2 + 2y - 1$
9. Evaluate A.) $(\sqrt{3}x + \sqrt{2}y - 5)^2$
 B.) $(7x + 4y)^2 - (7x - 5y + 3)^2$
10. $25(3x + y)^2 - 40(3x + y)(x - 2y) + 16(x - 2y)^2$
11. If $x - \frac{1}{x} = 7$, find $x^2 - \frac{1}{x^2}$
12. Factorise $(121x^2 - 66xy + 9y^2) - 25a^2$
13. Factorise $p^3 - \frac{1}{p^3}$
14. Evaluate $(a - 2b)(a + 2b)(a^2 + 4b^2)(a^4 + 16b^4)$
15. Factorise $x^3 + 3x + \frac{3}{x} + \frac{1}{x^3}$
16. Find the value of $\frac{(104)^2 - (96)^2}{4 \times 100 - 4}$
17. If $x^2 - ax + 36 = (x - 4)(x - 9)$, then find the value of a
18. If $(x - 3)(x + b) = x^2 - 7x + 12$, find the value of b
19. Find the value of $(565 + 435)^2 - 4 \times 565 \times 435$ with algebraic identities
20. Evaluate $(2a + 4b - 3c)^2 + (2a - 4b + 3c)^2$
21. If the expression $2 - 2 + 2 - x + 0.3 - 0.3$ will be a perfect square, then find the value of x
22. If $x + \frac{1}{x} = 11$, then find the value of $x - \frac{1}{x}$

ASSIGNMENT SHEET
CLASS: VIII

TOPIC: INTRODUCTION TO GRAPH

- (i) If (a, b) lies on the x -axis then what is the value of b ?
- (ii) If (a, b) lies on the y -axis then what is the value of a ?
- (iii) Write abscissa of the point $(-1, 2)$.
- (iv) Write ordinate of the point $(3, 4)$.
- (v) Write the distance of the point $(-3, -3)$ from x -axis.
- (vi) Write the distance of the point $(2, 3)$ from y -axis.
- (vii) Write the coordinates of the origin.
- (viii) Plot the point $(2, 3)$, $(3, 1)$, $(5, 4)$ and $(2, 4)$ on a graph. Join the lines to form a figure obtained. Also find the area of the figure so obtained.
- (ix) Plot $(1, 1)$, $(3, 5)$, $(7, 7)$. Join these points in pairs. Do they lie on a straight line passing through origin. How many more points you can find which lie on this line?
- (x) The perimeter of an equilateral triangle and its side are connected. Write the relation perimeter & Side. Draw the graph for this relation.
- (xi) The quantity of petrol filled in a car and its cost of petrol are given in the following table:

Litres of petrol filled	10	12	14	16	18
Cost of petrol (in ₹/l)	600	720	840	960	1080

Draw the graph representing the above data. Based on the graph answer the following questions:

- (i) find the cost of 13 litres of petrol.
- (ii) How much petrol can be purchased for 1200 ₹?

- (xii) The following table shows the number of patients discharged from a hospital with HIV diagnosis in different years.

Years	2002	2003	2004	2005	2006
No. of patients	150	170	95	215	230

Draw the graph representing the above data.

- (xiii) The following table gives the information regarding the number of persons employed to a piece of work and time taken to complete the work.

No. of persons	2	4	6	8	12
Time taken (in days)	12	6	4	3	2

Draw the graph representing the above data.

- (xiv) The runs scored by two teams A and B in first 10 overs are given below:

Overs	1	2	3	4	5	6	7	8	9	10
Team A	2	1	8	9	4	5	3	10	6	2
Team B	5	6	2	10	5	6	4	4	8	10

Draw the graph depicting the data on the x -axis and y -axis for each case.

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Assignment Sheet (Std. - VIII)

Subject - Mathematics

Chapter - Profit , Loss and discount

1. By selling a mobile phone for Rs. 6800, the shopkeeper loses 15%. Find his gain or loss percent if he sells it for Rs. 7200.
2. By selling 42 oranges, a person loses a sum equal to the selling price of 8 oranges. Find his loss percent.
3. An almirah of marked price Rs. 4000 is sold for Rs. 3700 after a certain discount. Find the rate of discount.
4. A man buys 10 articles for Rs. 120 and sells 8 articles for Rs. 100. Find his loss or gain percent.
5. The cost price of 5 articles is equal to the selling price of 6 articles. Find his loss or gain percent.
6. The cost price of 18 chairs is equal to the selling price of 16 chairs. Find his loss or gain percent.
7. By selling 288 hens, Ram loses a sum equal to the selling price of 12 hens. Find his loss percent.
8. A shopkeeper allows 25% discount on the marked price of the sarees and still makes a profit of 20%. If he gains Rs. 275 over the sale of one saree. Find the marked price of saree.

9. A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for Rs. 36.75 less he would have gained 30%. Find the cost price of the article.
10. Ravi bought the following articles from a store:
 - i. Pair of shoes costing Rs. 700, VAT @5%
 - ii. Television costing Rs. 10900, VAT @10%
 - iii. Clothes of Rs. 800, VAT @8%Calculate the total amount of the bill.



11. How much a shopkeeper must mark his goods so that after allowing a discount of 25% on the marked price, he still gains 20%, if the cost price of the goods is Rs. 20000.
12. Marked price of a water cooler is Rs. 4650. The shopkeeper offers an off season discount of 125 on its M.P. and still gains 10%. Find the cost price of the water cooler.
13. Heena bought two pairs of jeans for Rs. 725 each. She sold one of them at a gain of 8% and other at a loss of 4%. Find the gain or loss % in the whole transaction.
14. Rohit marks his goods at 40% above the cost price but allows a discount of 5% for cash payment to his customers. What actual profit does he make if he receives Rs. 1064 after allowing the discount?
15. A man purchases two fans for Rs. 2160. By selling one fan at a profit of 15% and other at a loss of 9%, he neither gains nor loses in the whole transaction. Find the cost price of each fan.
16. A tricycle is sold at a gain of 16%. Had it been sold for Rs. 100 more, the gain would have been 20%. Find the C.P. of the tricycle.
17. Shiksha purchases a car with a M.P. of Rs. 210000 at a discount of 5%. If VAT is charged at a rate of 10%, find the amount she has to pay to purchase the car.
18. A toy was sold at a gain of 12%. Had it been sold for Rs. 33 more, the gain would have been 14%. Find the cost price of the toy.
19. Ram goes to a shop and buys :
- 2 pairs of shoes for Rs. 900 each, VAT @ 5%
 - 1 tea set for Rs. 700, VAT @ 7%
 - 2 shirts for Rs. 500 each, VAT @ 8%
- Calculate total amount to be paid.
20. The difference between two selling prices of a shirt at profits of 4% and 5% is Rs. 6. Find:
- C.P. of the shirt.
 - two selling prices of the shirt.

ASSIGNMENT SHEET

CLASS- VIII

SUBJECT-MATHEMATICS

TOPIC- DIRECT AND INVERSE VARIATION

Q1) Which of the following quantities vary directly with each other?

- (i) Number of article (x) and their price (y)
- (ii) Weight of article (x) and their price(y)
- (iii) Speed is (x) and distance is (y)
- (iv) Speed is (x) and time is (y)
- (v) Number of labours (x) and time (y)

Q2) 68 boxes of a certain commodity require a shaft length 52.6 metre. How many boxes of the same commodity would require a shaft of length 20 a metre?

Q3) In 10 days, the earth picks up 2.6 x 10 pounds of dust from atmosphere, how much dust it will pick up in 45 days?

Q4) If 13 men can do a piece of work in 140 days, in how many days, 28 men will do it? How many men will be required to complete the work in 35 days?

Q5) Sumita can type 1080 words in one hour, what is her gross words a minute rate?

Q6) If x and y vary inversely as each other, and $x=10$ and $y=6$. Find x when $y=15$.

Q7) 15 cows can graze a field in 36 days, how many cows will graze the same field in 10 days

Q8) 1200 soldier in a fort had enough food for 28 days, after 4 days, some soldiers were transferred to another fort and thus food lasted now 37 more days. How many soldiers left in the fort?

Q9) Anuj is driving his car at a constant speed of 45 km/hr

(i) How far will he reach in 220 minutes?

(ii) in how much time will he cover a distance of 180 km?

Q10) a train 250m long is running at 80 km/hr. how much time will it take to cross a platform 150m long?

Q11) brass is made from zinc and copper. Sohan mixed 8kg of zinc with 9kg of copper. how much zinc does Sohan needed to mix with 30kg of copper?

Q12) a train 350m long is travelling at a speed of 108km/hr. how much time (in seconds) will it take to cross a tunnel 550m long?

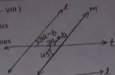
Q13) 120 men had food provision for 700 days. After 5 days 30 men died due to an epidemic. how long will the remaining food last?

Assignment Sheet (Std. - VIII)

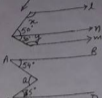
Subject - Mathematics

Chapter - Parallel Lines

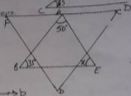
- In the given figure $l \parallel m$. Find a and b .
- In the given fig. $l \parallel m \parallel n$ find the value of x and y .



- In the given fig. $AB \parallel CD$. Find the value of a .



- If $AB \parallel CD$ and $BE \parallel CF$, then find x in the figure.



- In the given figure $p \parallel q$, $\angle XCB = 150^\circ$.

Find 1 and 2.



- Draw a line segment $AB = 6\text{cm}$ and divide it internally in the ratio 2:3.
- Draw a line segment $AB = 7\text{cm}$ and divide it internally in into 5 equal parts.
- Draw a line segment 9.6cm . Without constructing parallel lines mark three points P, Q, R such that $AP = PQ = QR = RB$.

- Draw a line segment $AB = 5\text{cm}$. Find a point R on it such that $AR = \frac{2}{5} AB$.
- Draw a line segment $PA = 7.7\text{cm}$. Find a point S on it such that $PS = \frac{3}{7} AS$.

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Assignment sheet of Maths
10th Memorization (VIII)

- 1 Find the volume of a right circular cylinder whose circumference of base is 88 cm and height is 5 cm
- 2 Find the total surface area of a cone whose length breadth and height are respectively 18 and 11 cm.
- 3 Find the ratio of surface areas of new cube formed to original, if each edge of cube is doubled.
- 4 Area of a trapezium (trapezoid) is 450 m^2 . The distance between parallel sides is 15 m and one of the parallel sides is 20 m. Find the other parallel side.
- 5 If the rainfall on a certain day was 5 cm, how many litres of water fall on 1 hectare of field on that day?
- 6 An exterior angle of a pentagon is 108°
- 7 Find the volume of a cube, each face of which has an area of 81 m^2 .
- 8 The curved surface area of a cylindrical pillar is 264 m^2 and its volume is $724 \frac{2}{3} \text{ m}^3$. Find the diameter of the pillar.

- 9 The length breadth and height of a room are 4.5 m, 3 m, 4 m respectively. Find the cost of plastering its walls and ceiling @ Rs 8 per square metre (under of room)
- 10 Find the volume of a cube whose face of which has an area of 121 m^2
- 11 A rectangular sheet of paper is 33 cm long and 32 cm wide. It is rolled along its length to make a cylinder of height 32 cm. A circular sheet of paper is attached to the bottom of the cylinder formed. Find the capacity of cylinder so formed.

Sub - Maths

Assignment Sheet

Std. VIIIth

Exponents and Radicals

- Express in exponential form: (a) $\sqrt{1100}$ (b) $\sqrt[3]{108}$
- Write the following in radical form: (a) $10^{\frac{1}{4}}$ (b) $\left(\frac{61}{202}\right)^{\frac{1}{17}}$
- Simplify (a) $2 \times 2^{\frac{3}{4}} \times (4)^{\frac{1}{2}}$ (b) $(10a^{\frac{1}{2}})^{\frac{1}{3}}$ (c) $\frac{36^{\frac{3}{4}}}{36^{\frac{1}{2}}} - (3a)^{\frac{3}{4}}$
- Evaluate: (a) $2 \times (2\sqrt{3})^{\frac{1}{2}} \times [(1)^{\frac{1}{2}} (2\sqrt{3})^{\frac{1}{2}}]$ (b) $\frac{36^{\frac{3}{4}}}{36^{\frac{1}{2}}} - (3a)^{\frac{3}{4}}$
- $2^{55} \times 2^{60} - 2^{97} \times 2^{18}$ (d) $\left(\frac{2}{11}\right)^{\frac{1}{2}} \left(\frac{1}{11}\right)^{\frac{1}{2}} \cdot \left(\frac{1}{11}\right)^{\frac{1}{2}}$
- Simplify and express the result in positive exponents
 (a) $(2x)^{\frac{1}{2}} \times (2x)^{\frac{3}{2}}$ (b) $\frac{5^{-2} \cdot 3^{-3} \times (10)^{\frac{1}{2}}}{(2)^{\frac{1}{2}} \cdot (30)^{\frac{1}{2}}}$ (c) $\frac{2^{2+5} + 2^2}{2^{2-3} + 2^2 \times 3}$
- Determine x so that: (a) $2^x - 2^x + 2 = 384$
 (b) $4^x - 4^{2x} = 24$ (c) $5^0 + 5^x + 5^{2x+1} = 75$ (d) $\left(\frac{-2}{6}\right)^{\frac{3}{4}} \div \left(\frac{-2}{3}\right)^{\frac{3}{4}} = \left(\frac{-2}{3}\right)^{\frac{3}{4}}$
 (e) $6^{2x+1} + 36 = 1296$
- Prove that: $\frac{a^{-1}}{a^{-1} + b^{-1}} + \frac{1}{a^{-1} \cdot b^{-1}} = \frac{a}{b}$ (f) $5^x + 2(5^x) + 3(5^x) = 15$
- Simplify: (a) $\left[\sqrt{x^2 y} \times \frac{1}{\sqrt{x^2 y}}\right]^{-1}$ (b) $\frac{9^{\frac{1}{2}} \times 1 \times 81^{\frac{1}{2}}}{3^{\frac{1}{2}} \times 1 \times 81^{\frac{1}{2}}}$
- Find the value of: (a) $(0.0011)^{-\frac{3}{4}}$ (b) $(216)^{\frac{1}{3}}$ (c) $\frac{4}{(36)^{\frac{1}{2}}}$
- If $a=2$, $b=3$, then find the value of $a^b + b^a$
- By what number should we multiply 108 so that the product may be equal to 4?
- By what number should $\left(\frac{1}{2}\right)^{\frac{1}{3}}$ be multiplied so that the product may be equal to $\left(\frac{1}{2}\right)^{\frac{1}{3}}$?
- By what number should we divide $16^{\frac{7}{8}}$ to obtain 1?
- By what number should $\left(\frac{5}{3}\right)^{-2}$ be multiplied so that the product may be $\left(\frac{7}{3}\right)^{-1}$? 15 find x if $\left(\frac{1}{2}\right)^{x+1} \times \left(\frac{2}{3}\right)^{2x+1} = \left(\frac{2}{3}\right)^x \times 6$

Polynomials

- 1) Divide (i) $6x^2y^3$ by $3xy$ (ii) $-31abc^2$ by $7abc$
- 2) Divide (i) $9m^2 + 2m^2 - 6m^2$ by $3m^2$
 (ii) $8a^2b^2c^2 + \frac{4}{3}ab^2c^2 - \frac{2}{3}ab^2c^2$ by $\frac{1}{3}abc$.
 (iii) $-x^4 + 2x^3 + 4x^2 + 8x$ by $\sqrt{3}x^2$

- 3) Divide (i) $10x^2 + x - 4x^2 + x^3$ by $x-3$.
 (ii) $14x^2 - 5x^2 + 9x - 1$ by $2x-1$
 (iii) $30x^2 + 11x^2 - 82x^2 - 3x + 48$ by $3x^2 + 2x + 4$
 (iv) $10x^3 + 17x^2 - 62x^2 + 30x - 3$ by $2x^2 + 7x - 1$

4) Verify division algorithm in each of the following:

Dividend	Divisor
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(i) $14x^2 + 13x - 15$	$7x - 4$
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(ii) $15y^3 - 10y^2 + 9y^2 - \frac{10}{3}y + 1$	$3y - 2$
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(iii) $34x - 22x^2 - 12x^2 - 10x^2 - 75$	$3x + 7$
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5) Using division of polynomials, state whether

(i) $3y^2 + 5$ is a factor of $6y^5 + 15y^4 + 16y^3 + 4y^2 + 10y - 35$

(ii) $z^2 + 3$ is a factor of $z^6 - 9z$.

(iii) $2x^2 - x + 3$ is a factor of $6x^5 - x^4 + 4x^3 - 5x^2 - x - 15$.

6) Divide 1st polynomial by 2nd by using factor method:

(i) $x^2 - 5x + 6$ by $x - 3$ (ii) $35a^2 - 30a - 99$ by $7a - 9$

(iii) $a^2 - b^2$ by $a - b$.

7) What must be added to $x^3 - 2x - 1$ so that $x-1$ is a factor of given polynomial.

8) Find the value of a if $x+2$ is a factor of $x^3 + 12x^2 + 6x + a$.

Assignment Sheet
Class VIII
Sub - Mathematics

2, Solve the following linear equations :-

$$a) \frac{(x+3) - (5x-7)}{6x+11} = \frac{8}{15}$$

$$b) \frac{2-7x}{1-5x} = \frac{3+7x}{4+5x}$$

$$c) \frac{3x}{5x-5} = -1$$

$$d) \frac{17(3-x) - 5(x+12)}{1-7x} = 8$$

$$e) \frac{3x}{4} - \frac{x-1}{2} = \frac{x-2}{3}$$

$$f) \frac{x^2 - (x+1)(x+2)}{5x+1} = 5$$

$$g) \frac{1}{x+1} + \frac{1}{x+2} = \frac{2}{x+10}$$

$$h) \frac{6x^2 + x - 4}{2x+5} = \frac{13x^2 + 5x - 2}{4x+3}$$

$$i) x \cdot \frac{(x-1)}{2} = 1 - \frac{(x-2)}{3}$$

$$j) \frac{(4x+3)(5-x)}{(2x+1)(7-x)} = 1$$

$$k) \frac{2}{5x} \cdot \frac{5}{3x} = \frac{1}{15}$$

2, One fifth of a number increased by 5 is equal to 4 less than one fourth of that number. Find the number.

3, $\frac{2}{3}$ of a number is 20 less than the number. Find the number.

4, The perimeter of a rectangle is 110 cm. If its length is decreased by 10% and its breadth is increased by 20% we get the same perimeter. Find the length and the breadth of the rectangle.

5, Difference between the squares of two consecutive no is 31. Find the numbers.

- 6, I have total of ₹1000 consisting of ten and five rupee notes. The number of ten rupee notes that I have is ten more than its number of five rupee notes. How many notes do I have of each denomination.
- 7, A number is 56 greater than the average of its third, quarter and one twelfth. Find it.
- 8, A number is such that it is as much greater than 84 as it is less than 108.
- 9, After twelve years I shall be three times as old as I was four years ago. Find my present age.
- 10, The sum of two numbers is 2490. If 65% of one number is equal to 8.5% of other. Find the number.
- 11, Find a number whose double is 45 greater than its half.
- 12, Find the number such that when five is subtracted from five times the number the result is four more than twice the number.
- 13, Divide 184 into two parts such that one of the parts may exceed one seventh of another part by eight.
- 14, If sum of consecutive even numbers is 134 find the numbers.
- 5, If the difference between the squares of two consecutive odd numbers is 136 find the numbers.