# ASSIGNMENT – Sub: MATHS - Dt: 04-APRIL-2020

BANKING

1. Manish opens a Recurring Deposit Account with the Bank of Rajasthan and deposits Rs. 600 per month for 20 months. Calculate the maturity value of this account, if the bank pays interest at the rate of 10% per annum. [Rs.13050]

2. Mrs. Mathew opened a Recurring Deposit Account in a certain bank and deposited Rs. 640 per month for $4^1/_2$ years. Find the maturity value of this account, if the bank pays interest at the rate of 12% per year. [Rs. 44064]

3. Each of A and B both opened recurring deposit accounts in a bank. If A deposited Rs.1,200 per month for 3 years and B deposited Rs.1,500 per month for $2\frac{1}{2}$ years; find, on maturity, who will get more amount and by how much? The rate of interest paid by the bank is 10% per annum.
   [B will get more money than A by Rs.952.50]

4. Ashish deposits a certain sum of money every month is a Recurring Deposit Account for a period of 12 months. If the bank pays interest at the rate of 11% p.a. and Ashish gets Rs. 12,715 as the maturity value of this account, what sum of money did money did he pay every month? [Rs. 1000]

5. Puneet has a Recurring Deposit Account in the Bank of Baroda and deposits Rs.140 per month for 4 years. If he gets ₹ 8,092 on maturity, find the rate of interest given by the bank. [10%]

6. David opened a Recurring Deposit Account in a bank and deposited Rs.300 per month for two years. If he received Rs.7,725 at the time of maturity, find the rate of interest per annum. [7%]

7. Amit deposited Rs.150 per month in a bank for 8 months under the Recurring Deposit Scheme. What will be the maturity value of his deposits, if the rate of interest is 8% per annum and interest is calculated at the end of every month? [Rs.1236]

8. Mrs. Geeta deposited Rs.350 per month in a bank for 1 year and 3 months under the Recurring Deposit Scheme. If the maturity value of her deposits is Rs.5,565; find the rate of interest per annum. [9%]

9. A recurring deposit account of Rs.1,200 per month has a maturity value of Rs.12,440. If the rate of interest is 8% and the interest is calculated at the end of every month; find the time (in months) of this Recurring Deposit Account. [10 months]

10. A man has a Recurring Deposit Account in a bank for 3½ years. If the rate of interest is 12% per annum and the man gets Rs.10,206 on maturity, find the value of monthly installments. [Rs.200]

11. Mr. Gulati has a Recurring Deposit Account of Rs.300 per month. If the rate of interest is 12% and the maturity value of this account is Rs. 8,100; find the time (in years) of this Recurring Deposit Account. [2 years]

12. Mr. Gupta opened a recurring deposit account in a bank. He deposited Rs.2,500 per month for two years. At the time of maturity he got Rs.67,500. Find:
    (i) the total interest earned by Mr. Gupta [Rs.7500]
    (ii) the rate of interest per annum. [12%]

13. Pramod deposits Rs. 600 per month in a Recurring Deposit Account for 4 years. If the rate of interest is 8% per year; calculate the maturity value of his account. [Rs. 33504]

14. Ritu has a Recurring Deposit Account in a bank and deposits Rs. 80 per month for 18 months. Find the rate of interest paid by the bank if the maturity value of account is Rs. 1,554. [10%]

15. The maturity value of a R.D. Account is Rs. 16,176. If the monthly installment is Rs. 400 and the rate of interest is 8%; find the time (period) of this R.D Account. [3 years]

16. Mr. Bajaj needs Rs. 30,000 after 2 years. What least money (in multiple of Rs.5) must he deposit every month in a recurring deposit account to get required money after 2 years, the rate of interest being 8% p.a.? [Rs. 1155]

17. Mr. Richard has a recurring deposit account in a post office for 3 years at 7.5% p.a. simple interest. If he gets Rs. 8,325 as interest at the time of maturity, find:
    i. the monthly income [Rs.2000]
    ii. the amount of maturity [Rs.80325]

18. Gopal has a cumulative deposit account and deposits Rs. 900 per month for a period of 4 years he gets Rs. 52,020 at the time of maturity, find the rate of interest. [10%]

19. Deepa has a 4-year recurring deposit account in a bank and deposits Rs. 1,800 per month. If she gets Rs. 1,08,450 at the time of maturity, find the rate of interest. [12.5%]

20. Mr. Britto deposits a certain sum of money each month in a Recurring Deposit Account of a bank. If the rate of interest is of 8% per annum and Mr. Britto gets Rs. 8,088 from the bank after 3 years, find the value of his monthly installment. [Rs. 200]

21. Katrina opened a recurring deposit account with a Nationalized Bank for a period of 2 years. If the bank pays interest at the rate of 6% per annum and the monthly installment is Rs. 1,000, find the :
    (i) interest earned in 2 years [Rs.1500]
    (ii) maturity value [Rs.25500]

22. Mohan has a recurring deposit account in a bank for 2 years at 6% p.a. simple interest. If he gets Rs. 1,200 as interest at the time of maturity, find:
    (i)   the monthly installment [Rs. 800]
    (ii)   the amount of maturity. [Rs. 20400]

# SIMILARITY

1. In the figure, given below, straight lines AB and CD intersect at P; and AC ‖ BD. Prove that :If BD = 2.4 cm, AC = 3.6 cm, PD = 4.0 cm and PB = 3.2 cm; find the lengths of PA and PC.
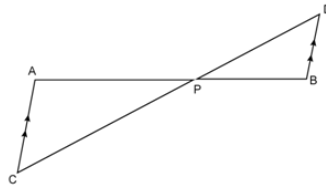
2. In a trapezium ABCD, side AB is parallel to side DC; and the diagonals AC and BD intersect each other at point P. Prove that : Δ APB is similar to Δ CPD.

3. In quadrilateral ABCD, the diagonals AC and BD intersect each other at point O. If AO = 2CO and BO = 2DO; show that : Δ AOB is similar to Δ COD.

4. In the given figure, DE ‖ BC, AE = 15 cm, EC = 9 cm, NC = 6 cm and BN = 24 cm.
   Write all possible pairs of similar triangles.
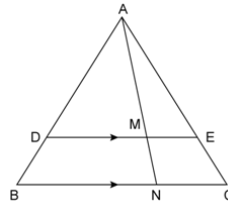
5. Given: $\angle$ GHE = $\angle$ DFE = 90°, DH = 8, DF = 12, DG = 3x - 1 and DE = 4x + 2.

   Find: the lengths of segments DG and DE.
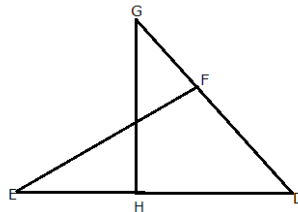
6. Given: RS and PT are altitudes of $\triangle$ PQR. Prove that:

   (i) ΔPQT ~ ΔRQS,

(ii)   (ii) PQ × QS = RQ × QT.

7. In the figure, PQRS is a parallelogram with PQ = 16 cm and QR = 10 cm. L is a point on PR such that RL: LP = 2: 3. QL produced meets RS at M and PS produced at N. Find the lengths of PN and RM.
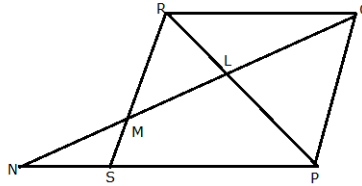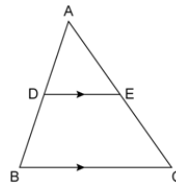

8. In the given figure, AB || EF || DC; AB = 67.5 cm, DC = 40.5 cm and AE = 52.5 cm.(i) Name the three pairs of similar triangles.(ii) Find the lengths of EC and EF.
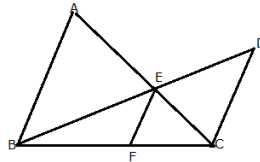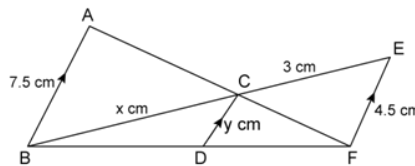

9. In the right-angled triangle QPR, PM is an altitude. Given that QR = 8 cm and MQ = 3.5 cm, calculate the value of PR.
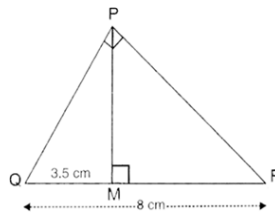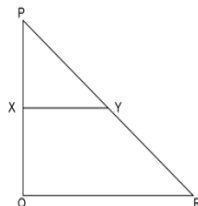

10. In the following figure, point D divides AB in the ratio 3 : 5. Find : $\dfrac{AE}{EC}$

11. In the figure, given below, AB, CD and EF are parallel lines. Given AB = 7.5 cm, DC = y cm, EF = 4.5 cm, BC = x cm and CE = 3. cm, calculate the values of x and y.

12. In the figure, given below, PQR is a right-angle triangle right angled at Q. XY is parallel to QR, PQ = 6 cm, PY = 4 cm and PX : XQ = 1 : 2. Calculate the lengths of PR and QR.

13. The given figure shows a parallelogram ABCD. E is a point in AD and CE produced meets BA produced at point F. If AE = 4 cm, AF = 8 cm and AB = 12 cm, find the perimeter of the parallelogram ABCD.
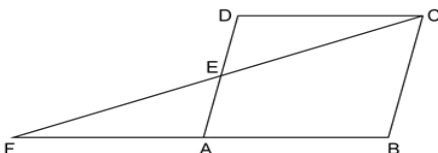
14. (i) The ratio between the corresponding sides of two similar triangles is 2 is to 5. Find the ratio between the areas of these triangles.

(ii) Areas of two similar triangles are 98 sq. cm and 128 sq. cm. Find the ratio between the lengths of their corresponding sides.

15. A line PQ is drawn parallel to the base BC of $\triangle$ ABC which meets sides AB and AC at points P and Q respectively. If AP $=\frac{1}{3}$ PB; find the value of:

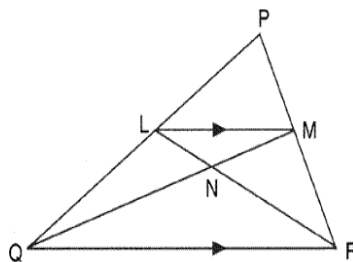(i) $\dfrac{\text{Area of } \triangle ABC}{\text{Area of } \triangle APQ}$

(ii) (ii) $\dfrac{\text{Area of } \triangle APQ}{\text{Area of trapezium PBCQ}}$

16. In the given triangle PQR, LM is parallel to QR and PM: MR = 3: 4.
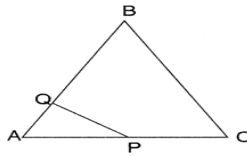
Calculate the value of ratio:

(i) $\dfrac{PL}{PQ}$ and then $\dfrac{LM}{QR}$

(ii) $\dfrac{\text{Area of } \triangle LMN}{\text{Area of } \triangle MNR}$

(iii) $\dfrac{\text{Area of } \triangle LQM}{\text{Area of } \triangle LQN}$

17. The given diagram shows two isosceles triangles which are similar also. In the given diagram, PQ and BC are not parallel; PC = 4, AQ = 3, QB = 12, BC = 15 and AP = PQ. Calculate:

(i)   the length of AP,

(ii)   (ii) the ratio of the areas of triangle APQ and triangle ABC.

18. The given figure shows a trapezium in which AB is parallel to DC and diagonals AC and BD intersects at point P. If AP: CP = 3: 5, find:

    (i) $\triangle$ APB : $\triangle$ CPB (ii) $\triangle$ DPC : $\triangle$ APB (iii) $\triangle$ ADP : $\triangle$ APB (iv) $\triangle$ APB : $\triangle$ ADB
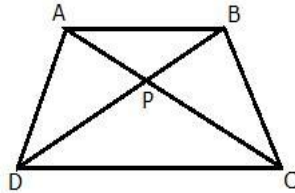
19. A triangle ABC has been enlarged by scale factor m = 2.5 to the triangle A' B' C' Calculate : the length of AB, if A' B' = 6 cm.

20. A triangle LMN has been reduced by scale factor 0.8 to the triangle L' M' N'. Calculate: the length of M' N', if MN = 8 cm.

21. A model of an aeroplane is made to a scale of 1 : 400. Calculate :the length, in cm, of the model; if the length of the aeroplane is 40 m.

22. On a map drawn to a scale of 1 : 2,50,000; a triangular plot of land has the following measurements : AB = 3 cm, BC = 4 cm and ∠ABC = 90°.Calculate :the actual lengths of AB and BC in km.

23. A model of a ship is made to a scale 1 : 300.

    i. The length of the model of the ship is 2 m. Calculate the length of the ship.

    ii. The area of the deck of the ship is 180,000 m². Calculate the area of the deck of the model.

    iii. The volume of the model is 6.5 m³. Calculate the volume of the ship.

24. Triangle ABC is similar to triangle PQR. If AD and PM are corresponding medians of the two triangles, prove that: $\dfrac{AB}{PQ} = \dfrac{AD}{PM}$

25. In the following diagram, lines l, m and n are parallel to each other. Two transversals p and q intersect the parallel lines at points A, B, C and P, Q, R as shown.

    Prove that: $\dfrac{AB}{BC} = \dfrac{PQ}{QR}$