



give me the questions with diagram if it contains the diagram and question paper should be of 40 marks

Here is a **40-mark practice paper** on **Chapter 1 – Similarity (Maths 2, SSC Maharashtra Board, Class 10)**, with **diagram-based questions clearly described** so you can draw them yourself while solving.

Similarity – Chapter 1 (Maths 2) – Self-Test Paper (40 marks)

Time: 90 minutes

Section A – Very Short Answer (1 mark each)

(Attempt any 6 out of 8)

1. State **Basic Proportionality Theorem (Thales Theorem)** in one sentence.
2. If $\triangle ABC \sim \triangle PQR$ and $AB = 8 \text{ cm}$, $PQ = 12 \text{ cm}$, find the ratio of their areas.
3. In $\triangle ABC$, $DE \parallel BC$. If $AD = 4 \text{ cm}$, $DB = 6 \text{ cm}$, find $\frac{AE}{EC}$.
4. If the ratio of corresponding sides of two similar triangles is $2 : 5$, what is the ratio of their corresponding altitudes?
5. Write the **AA-test of similarity** for triangles.
6. If the areas of two similar triangles are in the ratio $9 : 64$, what is the ratio of their corresponding medians?
7. In the figure below, $BC \parallel DE$. If $AB = 3 \text{ cm}$, $BD = 2 \text{ cm}$, $AC = 4.5 \text{ cm}$, find CE .

Diagram description:

- Draw $\triangle ABC$.
 - Point D on AB such that $BD = 2 \text{ cm}$.
 - Point E on AC such that $DE \parallel BC$.
8. In the figure, $\triangle ABC \sim \triangle DEF$. If $AB = 5 \text{ cm}$, $DE = 10 \text{ cm}$ and area of $\triangle ABC = 20 \text{ cm}^2$, find area of $\triangle DEF$.

Diagram description:

- Draw two triangles ABC and DEF such that corresponding angles are equal.

Section B – Short Answer (2 marks each)

(Attempt any 6 out of 8)

9. In $\triangle ABC$, $DE \parallel BC$. If $AD = 6$ cm, $DB = 4$ cm, $AE = 9$ cm, find EC .
10. $\triangle ABC \sim \triangle PQR$. If $AB = 12$ cm, $PQ = 8$ cm and area of $\triangle ABC = 72$ cm², find area of $\triangle PQR$.
11. In $\triangle PQR$, ray PS bisects $\angle P$. If $PQ = 10$ cm, $PR = 15$ cm, $QR = 20$ cm, find QS and SR .
12. In $\triangle XYZ$, $LM \parallel YZ$. If $XL = 3$ cm, $LZ = 4$ cm, $YM = 6$ cm, find MZ .
13. In the figure, $DE \parallel BC$. If $AD = 2$ cm, $DB = 3$ cm, $AE = 4$ cm, find EC .

Diagram description:

- Draw $\triangle ABC$.
 - Points D on AB , E on AC such that $DE \parallel BC$.
14. The perimeters of two similar triangles are 20 cm and 30 cm. If the area of the smaller triangle is 36 cm², find the area of the larger triangle.
 15. In the figure, $BC \parallel DE$. If $AB = 4$ cm, $BD = 6$ cm, $AC = 5$ cm, find CE .

Diagram description:

- Draw $\triangle ABC$.
- Point D on AB extended beyond B .
- Point E on AC such that $DE \parallel BC$.

16. State the **converse of Basic Proportionality Theorem** and write one numerical example.

Section C – Medium–Long Answer (3 marks each)

(Attempt any 4 out of 6)

17. In $\triangle ABC$, $DE \parallel BC$. If $AD = 5$ cm, $DB = 3$ cm, $AE = 10$ cm, find EC . Also find $\frac{\text{ar}(\triangle ADE)}{\text{ar}(\triangle ABC)}$.
18. $\triangle ABC \sim \triangle PQR$. If $AB = 10$ cm, $BC = 14$ cm, $AC = 16$ cm and $PQ = 5$ cm, find QR and PR .
19. In $\triangle ABC$, ray AD bisects $\angle A$. If $AB = 12$ cm, $AC = 18$ cm, $BD = 4$ cm, find DC and BC .
20. In $\triangle XYZ$, $LM \parallel YZ$. If $XL = 5$ cm, $LZ = 10$ cm, $YM = 6$ cm, find MZ . Also find the ratio of areas of $\triangle XLM$ and $\triangle XYZ$.
21. In the figure, $DE \parallel BC$. If $AD = 3$ cm, $DB = 2$ cm, $AE = 6$ cm, find EC . Also find $\frac{\text{ar}(\triangle ADE)}{\text{ar}(\triangle ABC)}$.

Diagram description:

- Draw $\triangle ABC$.

- Points D on AB , E on AC such that $DE \parallel BC$.

22. In the figure, $\triangle ABC \sim \triangle DEF$. If $AB = 9$ cm, $BC = 12$ cm, $AC = 15$ cm and $DE = 6$ cm, find EF and DF .

Diagram description:

- Draw two triangles ABC and DEF with corresponding angles equal.

Section D – Hard / Theorem-Based (4 marks each)

(Attempt any 4 out of 5)

23. In $\triangle ABC$, $DE \parallel BC$.

(a) Prove that $\frac{AD}{DB} = \frac{AE}{EC}$.

(b) If $AD = 6$ cm, $DB = 9$ cm, $AE = 4$ cm, find EC .

Diagram description:

- Draw $\triangle ABC$.
- Points D on AB , E on AC such that $DE \parallel BC$.

24. $\triangle ABC \sim \triangle DEF$.

(a) Prove that the ratio of their areas is equal to the square of the ratio of their corresponding sides.

(b) If $AB : DE = 3 : 4$ and area of $\triangle ABC = 54$ cm², find the area of $\triangle DEF$.

Diagram description:

- Draw two triangles ABC and DEF with corresponding angles equal.

25. In $\triangle PQR$, ray PS bisects $\angle P$.

(a) Prove that $\frac{QS}{SR} = \frac{PQ}{PR}$.

(b) If $PQ = 14$ cm, $PR = 21$ cm, $QR = 30$ cm, find QS and SR .

Diagram description:

- Draw $\triangle PQR$.
- Ray PS from P meeting QR at S such that $\angle QPS = \angle RPS$.

26. In the figure, $DE \parallel BC$.

(a) Prove that $\frac{AD}{AB} = \frac{AE}{AC}$.

(b) If $AD = 4$ cm, $AB = 10$ cm, $AE = 6$ cm, find AC .

Diagram description:

- Draw $\triangle ABC$.
- Points D on AB , E on AC such that $DE \parallel BC$.

27. In the figure, $AB \perp BC$ and $DC \perp BC$.

(a) Prove that $\triangle ABC \sim \triangle BCD$.

(b) If $AB = 6$ cm, $DC = 4$ cm, find $\frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle BCD)}$.

Diagram description:

- Draw line segment BC .
- From B , draw $AB \perp BC$.
- From C , draw $DC \perp BC$ on the same side of BC as AB .
- Join A to C and D to B .

Mark Distribution (Total 40 marks)

- Section A: $6 \times 1 = 6$ marks
- Section B: $6 \times 2 = 12$ marks
- Section C: $4 \times 3 = 12$ marks
- Section D: $4 \times 4 = 16$ marks

When you finish, you can send your answers (or a photo of your rough work) and I'll give you a **detailed marking scheme + corrections**.

Or say:

□ "Give me the solutions with steps and diagrams."

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1. <https://byjus.com/msbshse/maharashtra-board-solutions-class-10-maths-part-2-chapter-1/>
2. https://www.youtube.com/watch?v=p-r_8oDv8kU
3. https://www.shaalaa.com/textbook-solutions/c/scert-maharashtra-solutions-geometry-mathematics-2-english-10-standard-ssc-chapter-1-similarity_5417
4. <https://cdn1.byjus.com/wp-content/uploads/2020/04/msbshse-sol-class-10-maths-part-2-chapter-1.pdf>
5. <https://www.scribd.com/document/825805740/maharashtra-ssc-geometry-maths-2-similarity-question-bank-2025>
6. https://www.shaalaa.com/textbook-solutions/c/balbharati-solutions-mathematics-2-english-standard-10-maharashtra-state-board-chapter-1-similarity_690
7. https://www.maa.ac.in/prashnapedhi2023/10th/eng/10th_Maths_Part_II_ENG_QueBank_MSCERT.pdf
8. https://www.shaalaa.com/textbook-solutions/c/balbharati-solutions-geometry-mathematics-2-english-10-standard-ssc-maharashtra-state-board-chapter-1-similarity_690
9. <https://www.youtube.com/watch?v=Pz6KRO0RIPw>
10. <https://www.youtube.com/watch?v=rFzX4nYY1qE>