Area ratios: parallel lines and midpoints worksheet – Grade 8

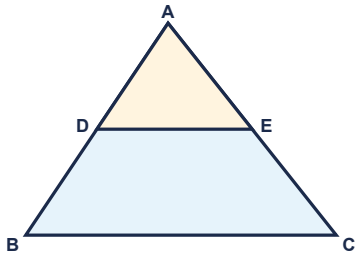
Grade 8 · Mixed level · 20 questions · **Version X6216**

Name: _____ Date: _____ Score: ___ / 20

Scan to check answers + earn stars

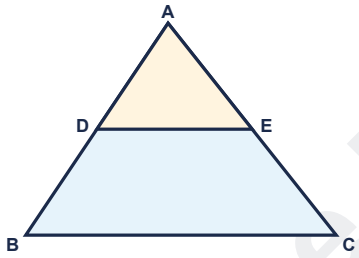
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1. D and E are the midpoints of AB and AC, and △ABC has an area of 36 cm². What is the area of △ADE, in cm²?



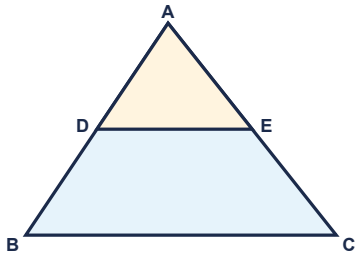
Answer: _____ cm²

2. DE ∥ BC and AD : AB = 1 : 3. What is the ratio of the area of △ADE to the area of △ABC?



A. 1 : 3 **B.** 1 : 9 **C.** 1 : 2 **D.** 1 : 8

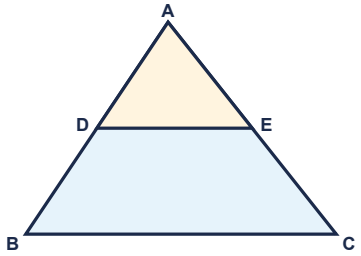
3. DE ∥ BC, and BC = 12. D and E are midpoints. How long is DE?



Answer: _____

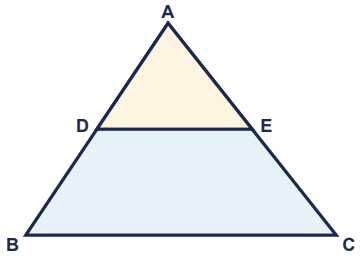
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4. DE ∥ BC. Which ratio gives the scale factor between △ADE and △ABC?



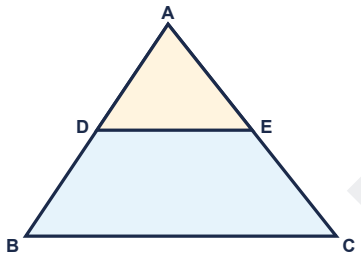
A. AD : DB **B.** AD : AB **C.** DB : AB **D.** DE : DB

5. DE ∥ BC, DE = 6 cm and BC = 16 cm. △ADE has an area of 54 cm². What is the area of △ABC, in cm²?



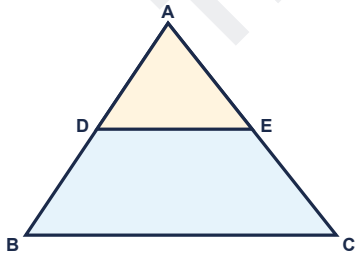
Answer: _____ cm²

6. DE ∥ BC, AD = 18 cm and AB = 48 cm. What is the scale factor from △ADE to △ABC, as a ratio?



A. 5 : 8 **B.** 9 : 64 **C.** 3 : 5 **D.** 3 : 8

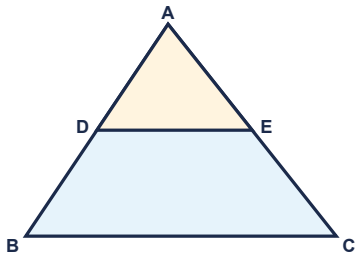
7. DE ∥ BC, and BC = 22. D and E are midpoints. How long is DE?



Answer: _____

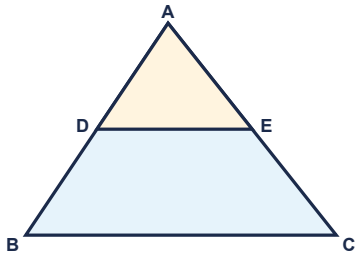
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8. DE ∥ BC with AD : DB = 3 : 2. What is the ratio of the area of △ADE to the area of trapezoid DECB?



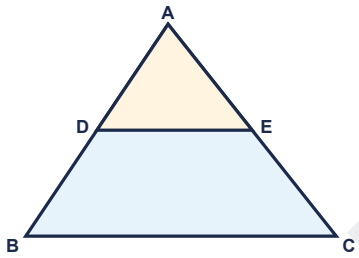
A. 9 : 25 **B.** 9 : 16 **C.** 9 : 4 **D.** 3 : 2

9. DE ∥ BC with AD : DB = 1 : 1. △ABC has an area of 12 cm². What is the area of △ADE, in cm²?



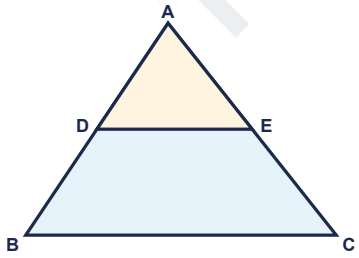
Answer: _____ cm²

10. DE ∥ BC with AD : DB = 1 : 1. △ADE has an area of 5 cm². What is the area of △ABC, in cm²?



Answer: _____ cm²

11. Priya says that if AD : DB = 5 : 1, the areas of △ADE and △ABC are 25 : 1. What is the mistake?

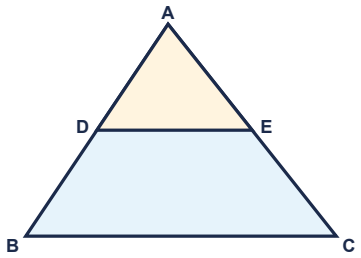


A. The side ratio should be AD : AB **B.** The ratio should not be squared

C. The triangles are not similar **D.** There is no mistake

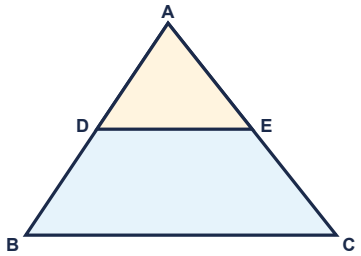
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12. DE ∥ BC with AD : DB = 3 : 1. △ABC has an area of 64 cm². What is the area of △ADE, in cm²?



Answer: _____ cm²

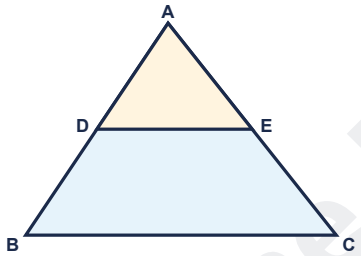
13. Ava says that if AD : DB = 5 : 4, the areas of △ADE and △ABC are 25 : 16. What is the mistake?



A. The side ratio should be AD : AB **B.** The ratio should not be squared

C. The triangles are not similar **D.** There is no mistake

14. DE ∥ BC with AD : DB = 2 : 3. △ADE has an area of 4 cm². What is the area of △ABC, in cm²?



Answer: _____ cm²

15. M, N and P are the midpoints of the sides of △ABC, which has an area of 8 cm². What is the area of △MNP, in cm²?

Answer: _____ cm²

16. Triangular plots are similar, and a map shows them at a scale of 1 : 400. A plot is 16 cm² on the map. What is the real area, in m²?

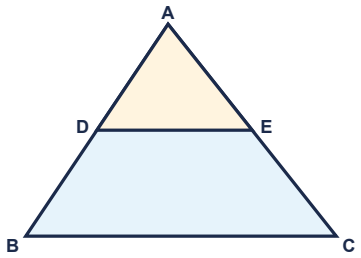
Answer: _____ cm²

17. △ABC has an area of 112 cm². Lines parallel to BC cut AB at the points 2/4 and 3/4 of the way from A. What is the area of the middle strip, in cm²?

Answer: _____ cm²

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18. DE ∥ BC with AD : AB = 4 : 8, and trapezoid DECB has an area of 240 cm². What is the area of △ABC, in cm²?



Answer: _____ cm²

19. A line parallel to BC cuts △ABC into two parts of equal area. BC has length $4\sqrt{2}$. How long is the parallel line?

Answer: _____

20. Triangular plots are similar, and a map shows them at a scale of 1 : 400. A plot is 36 cm² on the map. What is the real area, in m²?

Answer: _____ cm²

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Answer key · Version X6216

Area ratios: parallel lines and midpoints worksheet – Grade 8 · Grade 8 · to reprint this sheet or check the answers, enter X6216 on the skill page.

1. **9**
2. **B (1 : 9)**
3. **6**
4. **B (AD : AB)**
5. **384**
6. **D (3 : 8)**
7. **11**
8. **B (9 : 16)**
9. **3**
10. **20**
11. **A (The side ratio should be AD : AB)**
12. **36**
13. **A (The side ratio should be AD : AB)**
14. **25**
15. **2**
16. **256**
17. **35**
18. **320**
19. **4**
20. **576**

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