Area of Triangles

Name: _____	Date: _____	Score: _____ / 24

Quick Review

The **area** of a triangle is the amount of flat space inside it. Every triangle has a **base** and a matching **height** — the height is always measured straight up from the base, forming a right angle. The formula is $A = \frac{1}{2} \times b \times h$. A handy way to think about it: a triangle is exactly *half* of a rectangle with the same base and height. So multiply the base by the height, then take half. Area is always measured in **square units**, like square inches (in^2) or square centimeters (cm^2).

◇ **Example:** Find the area of a triangle with a base of 12 cm and a height of 7 cm.
⇒ Start with the formula $A = \frac{1}{2} \times b \times h$. We know the base is 12 and the height is 7. First multiply the base and height together: $12 \times 7 = 84$. Now take half of that, since a triangle is half of a rectangle: $\frac{1}{2} \times 84 = 42$. Don't forget the units — because we measured in centimeters, the area is in square centimeters.

Answer: 42 cm^2

PRACTICE

Find the area of each triangle. Include square units where given.

1. Triangle: base 6, height 4 _____
2. Triangle: base 8, height 3 _____
3. Triangle: base 10, height 5 _____
4. Triangle: base 12, height 4 _____
5. Triangle: base 7, height 6 _____
6. Triangle: base 9, height 8 _____
7. Triangle: base 14, height 5 _____
8. Triangle: base 20, height 6 _____
9. Triangle: base 11, height 4 _____
10. Triangle: base 15, height 8 _____
11. Triangle: base 16, height 9 _____
12. Triangle: base 13, height 10 _____
13. Triangle: base 18, height 7 _____
14. Triangle: base 22, height 5 _____
15. Triangle: base 24, height 10 _____
16. Triangle: base 25, height 8 _____
17. Triangle: base 30, height 12 _____
18. Triangle: base 4.5, height 6 _____
19. Triangle: base 8.5, height 4 _____
20. Triangle: base 12.4, height 5 _____

♦ Word Problems

21. A sailboat has a triangular sail with a base of 9 feet and a height of 12 feet. What is the area of the sail? _____

22. Maya is planting a triangular flower garden. The base measures 14 meters and the height measures 6 meters. How many square meters of soil will she need to cover the garden? _____

23. A school banner is shaped like a triangle with a base of 18 inches and a height of 10 inches. What is the area of the banner? _____

24. A stained-glass window is made of 5 identical triangular panes. Each pane has a base of 4 inches and a height of 3 inches. What is the total area of all 5 panes? _____

Answer Keys

1. $\boxed{12}$	**13.** $\boxed{63}$
2. $\boxed{12}$	**14.** $\boxed{55}$
3. $\boxed{25}$	**15.** $\boxed{120}$
4. $\boxed{24}$	**16.** $\boxed{100}$
5. $\boxed{21}$	**17.** $\boxed{180}$
6. $\boxed{36}$	**18.** $\boxed{13.5}$
7. $\boxed{35}$	**19.** $\boxed{17}$
8. $\boxed{60}$	**20.** $\boxed{31}$
9. $\boxed{22}$	**21.** $\boxed{54\ \text{ft}^2}$
10. $\boxed{60}$	**22.** $\boxed{42\ \text{m}^2}$
11. $\boxed{72}$	**23.** $\boxed{90\ \text{in}^2}$
12. $\boxed{65}$	**24.** $\boxed{30\ \text{in}^2}$

Step-by-Step Explanations

1. Multiply $6 \times 4 = 24$, then take half: $\frac{1}{2} \times 24 = 12$.
2. Multiply $8 \times 3 = 24$, then half of 24 is 12.
3. Multiply $10 \times 5 = 50$, then take half: $\frac{1}{2} \times 50 = 25$.
4. Multiply $12 \times 4 = 48$, then half of 48 is 24.
5. Multiply $7 \times 6 = 42$, then take half: $\frac{1}{2} \times 42 = 21$.
6. Multiply $9 \times 8 = 72$, then half of 72 is 36.
7. Multiply $14 \times 5 = 70$, then take half: $\frac{1}{2} \times 70 = 35$.
8. Multiply $20 \times 6 = 120$, then half of 120 is 60.
9. Multiply $11 \times 4 = 44$, then take half: $\frac{1}{2} \times 44 = 22$.
10. Multiply $15 \times 8 = 120$, then half of 120 is 60.
11. Multiply $16 \times 9 = 144$, then take half: $\frac{1}{2} \times 144 = 72$.
12. Multiply $13 \times 10 = 130$, then half of 130 is 65.
13. Multiply $18 \times 7 = 126$, then take half: $\frac{1}{2} \times 126 = 63$.
14. Multiply $22 \times 5 = 110$, then half of 110 is 55.
15. Multiply $24 \times 10 = 240$, then take half: $\frac{1}{2} \times 240 = 120$.
16. Multiply $25 \times 8 = 200$, then half of 200 is 100.
17. Multiply $30 \times 12 = 360$, then take half: $\frac{1}{2} \times 360 = 180$.
18. Multiply $4.5 \times 6 = 27$, then take half: $\frac{1}{2} \times 27 = 13.5$.
19. Multiply $8.5 \times 4 = 34$, then half of 34 is 17.
20. Multiply $12.4 \times 5 = 62$, then take half: $\frac{1}{2} \times 62 = 31$.
21. Use $A = \frac{1}{2} \times b \times h$. Multiply $9 \times 12 = 108$, then take half: $\frac{1}{2} \times 108 = 54$ square feet.
22. Multiply the base and height: $14 \times 6 = 84$. Then take half, because a triangle is half a rectangle: $\frac{1}{2} \times 84 = 42$ square meters.
23. Multiply $18 \times 10 = 180$, then take half: $\frac{1}{2} \times 180 = 90$ square inches.
24. First find one pane: $\frac{1}{2} \times 4 \times 3 = 6$ square inches. Then multiply by 5 panes: $6 \times 5 = 30$ square inches.

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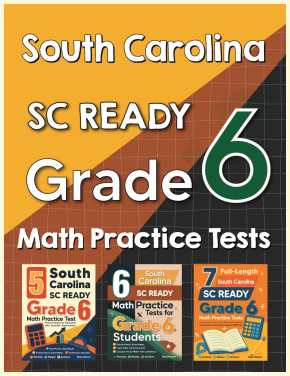

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