

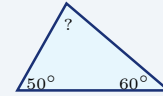
Triangles

Name: _____ Date: _____ Score: _____ / 18

Quick Review and Helpful Hints

The three angles of any triangle add up to 180° . To find a missing angle, subtract the known angles from 180° .
 The area of a triangle is $A = \frac{1}{2}bh$, where b is the base and h is the height drawn perpendicular to that base.

► **Example:** Two angles of a triangle are 50° and 60° . Find the third angle. **Work:** All three angles add to 180° . Add the known angles: $50 + 60 = 110$. Subtract from 180: $180 - 110 = 70$. ★ **Answer:** 70°



Angles sum to 180° , so $? = 70^\circ$.

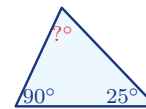
Practice Problems

Use each diagram to find the missing angle or the area, as directed.

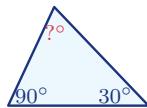
1. Find the missing angle.



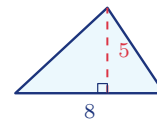
6. Find the other acute angle.



2. Find the missing angle.



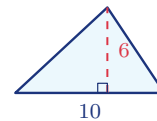
7. Find the area.



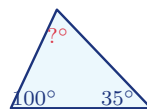
3. Find the missing angle.



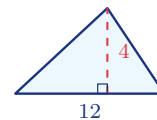
8. Find the area.



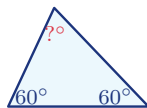
4. Find the missing angle.



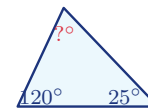
9. Find the area.



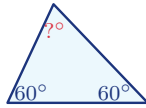
5. Find the missing angle.



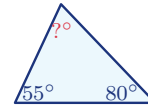
10. Find the missing angle.



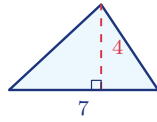
11. Find each angle of an equilateral triangle.



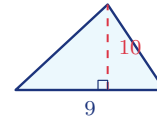
13. Find the missing angle.



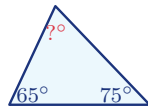
12. Find the area.



14. Find the area.



◆ Word Problems



15. A triangular sail has angles 65° and 75° . Find the third angle.

Use angle sum = 180°

Work: _____



17. In a right triangle, one acute angle is 38° . Find the other acute angle.

Use angle sum = 180°

Work: _____



16. A triangular garden has base 14 ft and height 6 ft. Find its area.

Use $A = \frac{1}{2}bh$

Work: _____



18. A triangular flag has base 20 cm and height 15 cm. Find its area.

Use $A = \frac{1}{2}bh$

Work: _____



Answer Keys

1. 70°

2. 60°

3. 90°

4. 45°

5. 60°

6. 65°

7. 20

8. 30

9. 24

10. 35°

11. 60°

12. 14

13. 45°

14. 45

15. 40°

16. 42 ft^2

17. 52°

18. 150 cm^2

Step-by-Step Explanations

1. Start by naming the process: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is The three angles of a triangle always total 180° . Subtract the two you know: $180 - 40 - 70 = 70^\circ$. So the final answer is 70° .

2. A good way to think about this is: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 90 - 30 = 60^\circ$. So the final answer is 60° .

3. Step by step: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 45 - 45 = 90^\circ$ – this makes a right triangle. So the final answer is 90° .

4. Take it one move at a time: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 100 - 35 = 45^\circ$. So the final answer is 45° .

5. Start by naming the process: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 60 - 60 = 60^\circ$; all three are equal, so it's equilateral. So the final answer is 60° .

6. A good way to think about this is: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is A right triangle already has a 90° angle, so the other acute angle is $180 - 90 - 25 = 65^\circ$. So the final answer is 65° .

7. Step by step: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is Area of a triangle is $\frac{1}{2}bh$: $\frac{1}{2}(8)(5) = 20$. So the final answer is 20.

8. Take it one move at a time: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $\frac{1}{2}(10)(6) = 30$. So the final answer is 30.

9. Start by naming the process: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $\frac{1}{2}(12)(4) = 24$. So the final answer is 24.

10. A good way to think about this is: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 120 - 25 = 35^\circ$. So the final answer is 35° .

11. Step by step: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is An equilateral triangle has three equal angles, so each is $180 \div 3 = 60^\circ$. So the final answer is 60° .

12. Take it one move at a time: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $\frac{1}{2}(7)(4) = 14$. So the final answer is 14.

13. Start by naming the process: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $180 - 55 - 80 = 45^\circ$. So the final answer is 45° .

14. A good way to think about this is: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is $\frac{1}{2}(9)(10) = 45$. So the final answer is 45.

15. Step by step: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is The third angle of the sail is $180 - 65 - 75 = 40^\circ$. So the final answer is 40° .

16. Take it one move at a time: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is Area = $\frac{1}{2}(14)(6) = 42$ square feet. So the final answer is 42 ft^2 .

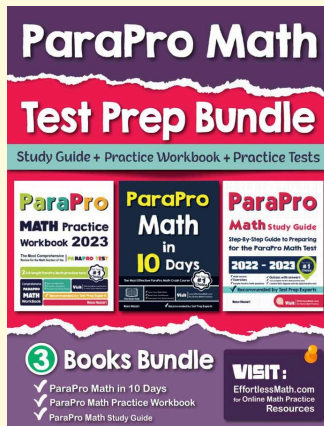
17. Start by naming the process: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is The other acute angle is $180 - 90 - 38 = 52^\circ$. So the final answer is 52° .

18. A good way to think about this is: Use the triangle angle-sum rule: the three interior angles add to 180° , then solve for the missing value. The setup/work is Area = $\frac{1}{2}(20)(15) = 150$ square cm. So the final answer is 150 cm^2 .



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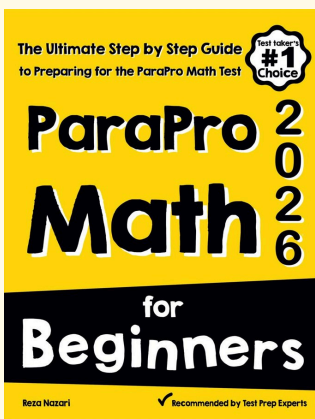
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