

# Math 2

Quiz tomorrow

↳ Crash Course on  $\Delta$

↳  $\Delta$  Congruence

SSS

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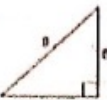
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Math 11 - HW - Verifying Right Triangles Name: Kel

**FINDING SIDE LENGTHS** Find the unknown side length. Simplify answers that are radicals. Tell whether the side lengths form a Pythagorean triple.

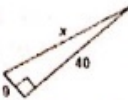
1. 

$$x^2 + 6^2 = 8^2$$

$$x^2 + 36 = 81$$

$$x^2 = 45$$

$$x = \sqrt{45}$$

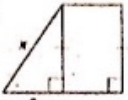
2. 

$$9^2 + 40^2 = x^2$$

$$81 + 1600 = x^2$$

$$1681 = x^2$$

$$x = 41$$

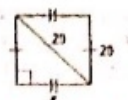
3. 

$$2^2 + 3^2 = x^2$$

$$4 + 9 = x^2$$

$$13 = x^2$$

$$x = \sqrt{13}$$

4. 

$$x^2 + 20^2 = 29^2$$

$$x^2 + 400 = 841$$

$$x^2 = 441$$

$$x = 21$$

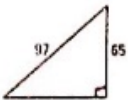
**Pythagorean Triples** The variables  $r$  and  $s$  represent the lengths of the legs of a right triangle, and  $t$  represents the length of the hypotenuse. The values of  $r$ ,  $s$ , and  $t$  form a Pythagorean triple. Find the unknown value.

5.  $r = 9, s = 12$

6.  $s = 20, t = 101$

7.  $t = 757, s = 595$

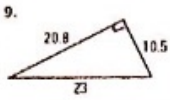
**VERIFYING RIGHT TRIANGLES** Tell whether the triangle is a right triangle.

8. 

$$72^2 + 65^2 = 97^2?$$

$$9409 = 9409$$

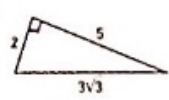
Yes

9. 

$$10.5^2 + 20.8^2 = 23^2?$$

$$542.89 = 529$$

No


10. 

$$2^2 + 5^2 = (3\sqrt{3})^2?$$

$$4 + 25 = 9 \cdot 3$$

$$29 = 27$$

No

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**CLASSIFYING TRIANGLES** Decide whether the numbers can represent the side lengths of a triangle. If they can, classify the triangle as *right*, *acute*, or *obtuse*.

11. 20, 99, 101  
 $20^2 + 99^2 = 101^2$   
 $10201 = 10201$   
right

12. 26, 10, 17  
 $20^2 + 17^2 = 26^2$   
 $689 > 676$   
acute

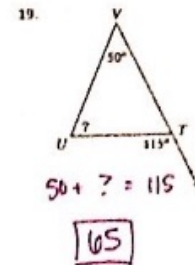
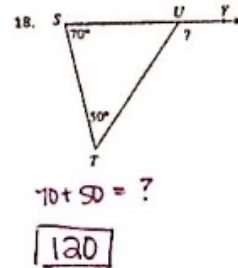
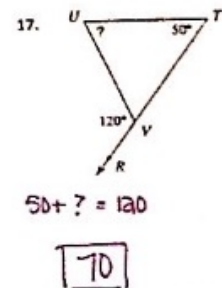
13. 4,  $\sqrt{67}$ , 9  
 $4^2 + 16 < 81$   
 $83 < 361$   
obtuse

14. 16, 30, 34  
 $16^2 + 30^2 = 34^2$   
 $1156 = 1156$   
right

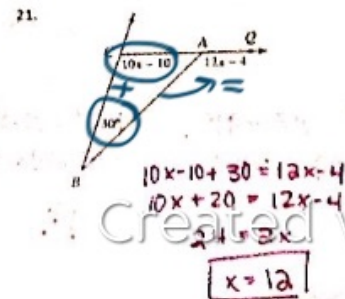
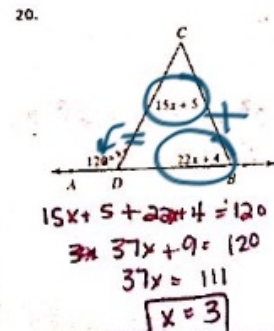
15. 4, 5, 5  
 $4^2 + 5^2 = 5^2$   
acute

16. 10, 49, 60  
 $10^2 + 49^2 = 60^2$   
 $2501 < 3600$   
obtuse

Find the measure of the indicated angle.

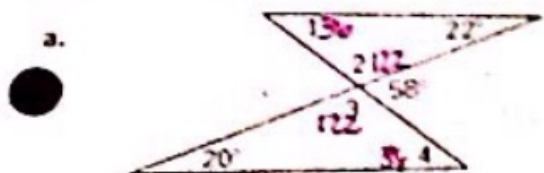


Challenge YOSEF!!! Find the value of  $x$ .

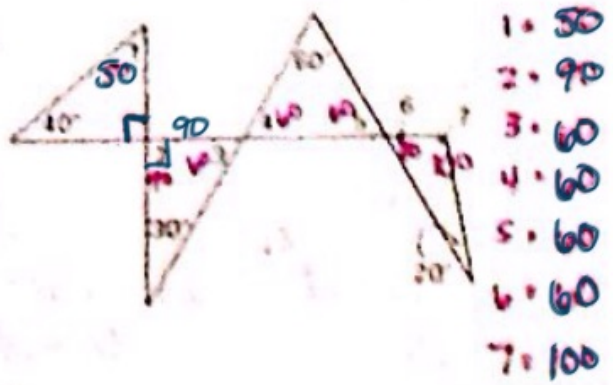


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9. Find the measure of the numbered angle



- 1 = 36
- 2 = 122
- 3 = 122
- 4 = 38



- 1 = 50
- 2 = 90
- 3 = 60
- 4 = 60
- 5 = 60
- 6 = 60
- 7 = 100

**MATCHING TRIANGLES** In Exercises 10–15, match the triangle description with the most specific name.

- |   |                      |
|---|----------------------|
| 10. Side lengths: 2 cm, 3 cm, 4 cm <b>B</b> | <b>A</b> Equilateral |
| 11. Side lengths: 3 cm, 2 cm, 3 cm <b>E</b> | <b>B</b> Scalene     |
| 12. Side lengths: 4 cm, 4 cm, 4 cm <b>A</b> | <b>C</b> Obtuse      |
| 13. Angle measures: 60°, 60°, 60° <b>D</b>  | <b>D</b> Equiangular |
| 14. Angle measures: 30°, 60°, 90° <b>F</b>  | <b>E</b> Isosceles   |
| ● Angle measures: 20°, 115°, 15° <b>C</b>   | <b>F</b> Right       |

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Determine whether the following side lengths would form a triangle. Describe why or why not.

28. 9, 10, 11

$$9 + 10 > 11$$

Yes

29. 7, 10, 15

$$7 + 10 > 15$$

Yes

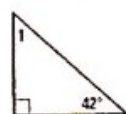
30. 14, 16, 2

$$2 + 14 > 16$$

No

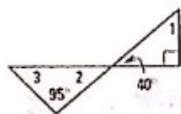
FINDING ANGLE MEASURES Find the measure of the numbered angles.

31.



$$1 = 48$$

32.

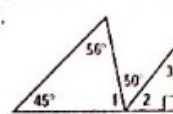


$$1 = 50$$

$$2 = 40$$

$$3 = 45$$

33.



$$1 = 79$$

$$2 = 51$$

$$3 = 39$$

34. USING ALGEBRA The variable expressions represent the angle measures of a triangle. Find the measure of each angle. Then classify the triangle by its angles.

Acute

$$34. m\angle A = x^\circ \quad 33$$

$$m\angle B = 2x^\circ \quad 66$$

$$m\angle C = (2x + 15)^\circ \quad 81$$

$$x + 2x + 2x + 15 = 180$$

$$5x = 165$$

$$x = 33$$

Obtuse

$$35. m\angle R = x^\circ \quad 20$$

$$m\angle S = 7x^\circ \quad 140$$

$$m\angle T = x^\circ \quad 20$$

$$x + x + 7x = 180$$

$$9x = 180$$

$$x = 20$$

Right

$$36. m\angle W = (x - 15)^\circ$$

$$m\angle Y = (2x - 165)^\circ$$

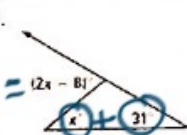
$$m\angle Z = 90^\circ$$

$$x - 15 + 2x - 165 + 90 = 180$$

$$3x = 270$$

37. EXTERIOR ANGLES Find the measure of the exterior angle shown.

37.

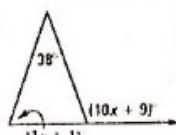


$$x + 31 = 2x - 8$$

$$38 = x$$

$$2(22) = 44$$

38.



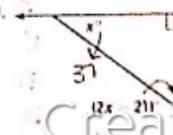
$$7x + 1 + 38 = 10x + 9$$

$$7x + 39 = 10x + 9$$

$$3x = 30$$

$$x = 10$$

39.



$$x + 21 + 37 = 180$$

$$3x + 69 = 180$$

$$3x = 111$$

$$x = 37$$

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Math 2 Name YAY Date \_\_\_\_\_

### Triangle Properties Practice

Find the measure of each angle indicated.

1) 70

2) 70

3) 42

4) 57

5) 75

6) 100

7) x = -7

8) x = -8

9) x = 7

10) x = 44

Solve for x.

~~$x + 52 = 45$~~   
 ~~$-52 -52$~~   
 $x = -7$

$180 = 45 + x + 52 + 100$   
 $180 = 97 + x$   
 $x = -17$

Find the measure of angle A.

9)  $180 = 90 + 2x + 1 + 5x$   
 $180 = 91 + 7x$   
 $90 = 7x$   
 $x = 12.85$

10)  $180 = 40 + 74 + x + 18$   
 $180 = 132 + x$   
 $48 = x$

Find the measure of each angle indicated.

11) 80

12) 70

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State if the three numbers can be the measures of the sides of a triangle.

13) 2, 8, 9 **yes**  $2+8 > 9$

14) 11, 11, 20 **yes**

15) 7, 8, 7 **yes**

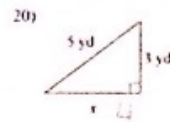
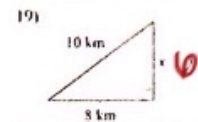
16) 11, 19, 11 **yes**

Two sides of a triangle have the following measures. Find the range of possible measures for the third side.

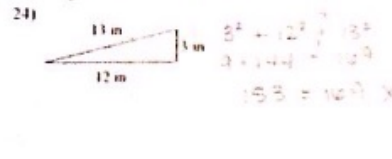
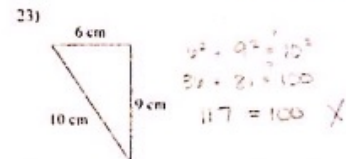
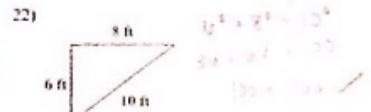
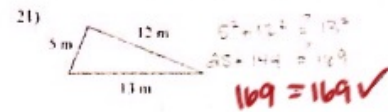
17) 9, 9  $< 18$

18) 10, 6  $< 16$

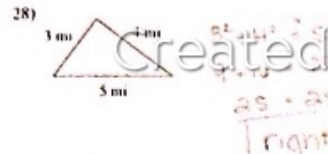
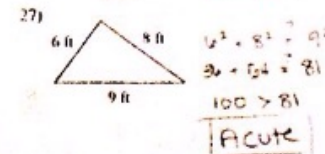
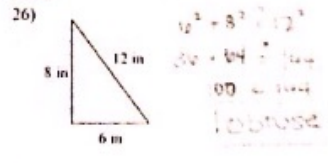
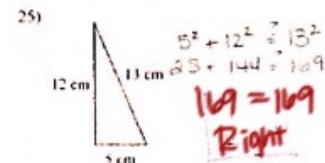
Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.



State if each triangle is a right triangle.




State if each triangle is acute, obtuse, or right.



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Answers : #7

1. No  
 2. ASA  
 3. SSS  
 4. ASA  
 5. No  
 6. ASA  
 7. No  
 8. SSS  
 9. SAS  
 10. SSS



11.  $\angle DUT \cong \angle SUT$

12.  $\overline{XK} \cong \overline{WV}$

13.  $\overline{AC} \cong \overline{JL}$

14.  $\overline{DE} \cong \overline{JK}$

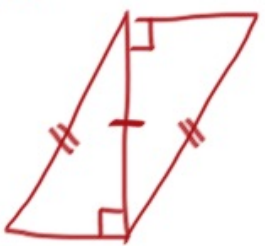
15.  $\overline{JI} \cong \overline{ST}$


16.  $\angle L \cong \angle T$

17.  $\overline{PS} \cong \overline{QD}$

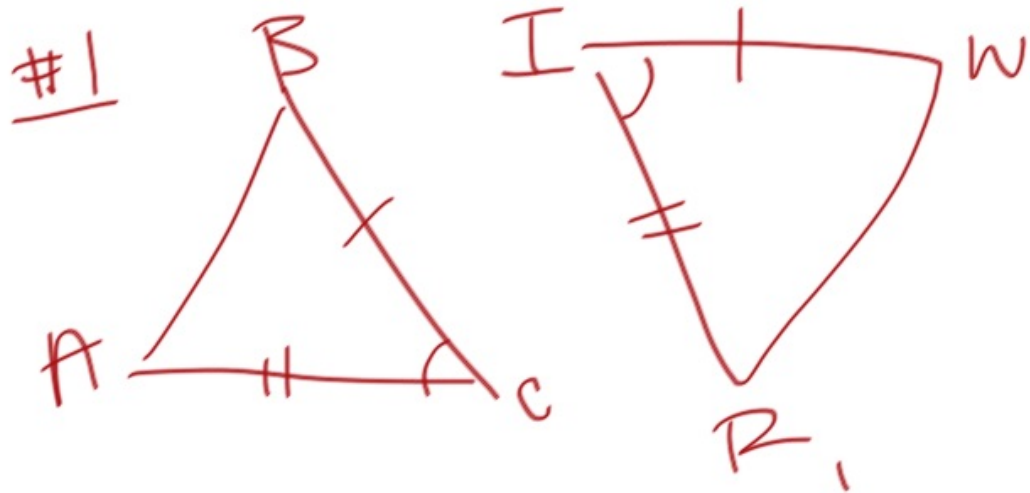
18.  $\overline{WV} \cong \overline{MV}$

#12 SAS



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$\triangle ABC \cong \triangle RNI$  by SAS

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