

Key

1. We can classify triangles two ways: by sides and angles.

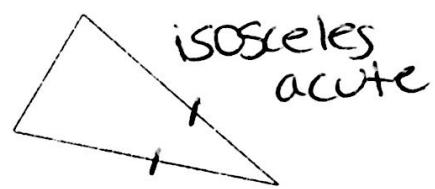
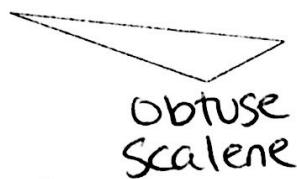
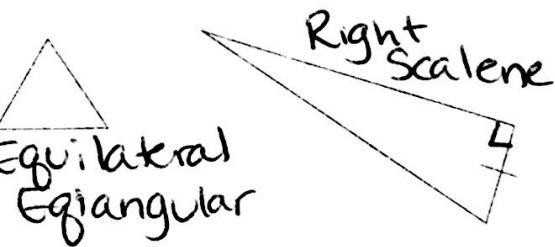
Classifications by sides

- All 3 sides congruent: equilateral
- At least 2 sides congruent: isosceles
- No congruent sides: scalene

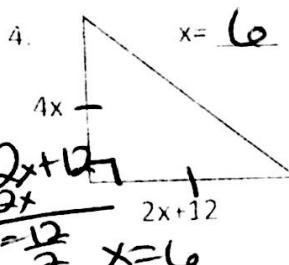
Classifications by angles

- Three congruent angles: equiangular
- One angle greater than 90°: obtuse
- One angle exactly 90°: right
- All three angles less than 90°: acute

2. Classify each triangle.



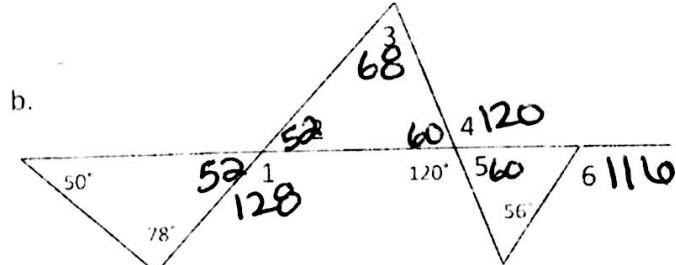
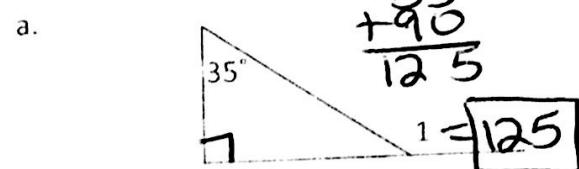
3. Classify the triangle with A(5, 4) B(3, -1) and C(7, -1).



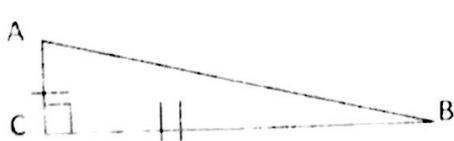
5. Equilateral △ with AB = 2x-5 and BC = 3x-9. Find x and the side length.

6. Every triangle has 180° degrees. Explain how we know this.
If we cut the angles apart and match them up they make a line.

7. Find the values of each angle in each figure.



8. Write a congruency statement for the triangles below.

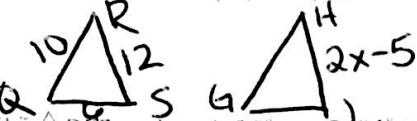


$\triangle ABC \cong \triangle FDE$ or $\triangle BCA \cong \triangle DEF$ or $\triangle CAB \cong \triangle EFD$

9. What does CPCTC stand for?

corresponding parts of congruent triangles are congruent

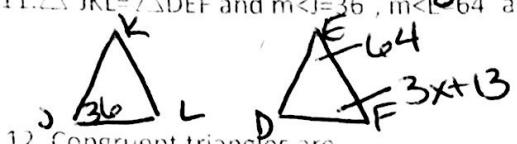
10. $\triangle QRS \cong \triangle GHI$, RS=12, QR=10, QS=6 and HI=2x-5. Draw & label the triangles, then solve for x.



$$\begin{array}{r} 2x-5=12 \\ +5 \quad +5 \\ \hline 2x=17 \end{array}$$

$$\begin{array}{r} 2x=17 \\ \hline 2 \quad 2 \\ x=8.5 \end{array}$$

11. $\triangle JKL \cong \triangle DEF$ and $m\angle J=36^\circ$, $m\angle L=64^\circ$ and $m\angle F=(3x+13)^\circ$. Draw & label the triangles, and solve for x.



$$36+64+3x+13=180$$

$$\begin{array}{r} 113+3x=180 \\ -113 \quad -113 \\ \hline 3x=67 \end{array}$$

$$x=22.3$$

12. Congruent triangles are _____

13. The 5 shortcuts to prove triangles \cong are SSS, SAS, ASA, AAS, HL.

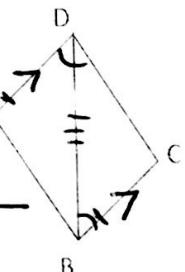
14. TWO ways we cannot prove triangles congruent are AAA & ASS or SSA

Solve the following proofs:

Proof #1:

Given: $AD \parallel BC$, $AD \cong BC$

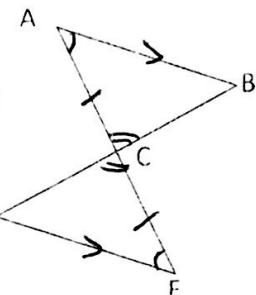
Prove: $\triangle ABD \cong \triangle CDB$



Proof #2:

Given: C is midpoint of AE, $AB \parallel DE$

Prove: $\triangle ACE \cong \triangle ECD$

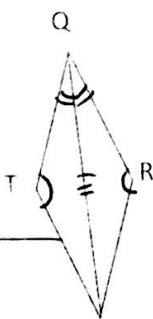


- | Statements | Reasons |
|--|----------------------------------|
| 1) $AD \parallel BC$ | 1) given |
| 2) $AD \cong BC$ | 2) reflexive |
| 3) $\angle ADB \cong \angle CBD$ | 3) Alternate Interior \angle s |
| 4) $\triangle ABD \cong \triangle CDB$ | 4) SAS |

Proof #3:

Given: QS bisects $\angle RST$, $\angle R \cong \angle T$

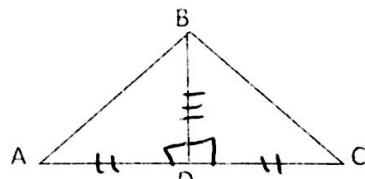
Prove: $QR \cong QT$



- | Statements | Reasons |
|--|--|
| 1) QS bisects $\angle RST$ | 1) given |
| 2) $\angle RQS \cong \angle TQS$ | 2) def of bisect |
| 3) $\overline{QS} \cong \overline{QS}$ | 3) Reflexive |
| 4) $\triangle QTS \cong \triangle QRS$ | 4) SAA |
| 5) $QR \cong QT$ | 5) corresponding parts of \cong Δ s are \cong |

Given: BD is a perpendicular bisector of AC

Prove: $\angle A \cong \angle C$



- | Statements | Reasons |
|---|--|
| 1) BD is a perpendicular bisector of AC | 1) given |
| 2) $\angle ADB \cong \angle CBD$ | 2) all right \angle s are \cong |
| 3) $\overline{AD} \cong \overline{CD}$ | 3) def of bisect |
| 4) $\overline{BD} \cong \overline{BD}$ | 4) Reflexive |
| 5) $\triangle ABD \cong \triangle CBD$ | 5) SAS |
| 6) $\angle A \cong \angle C$ | 6) corresponding parts of \cong Δ s are \cong |