$\cong$ Congruent △s

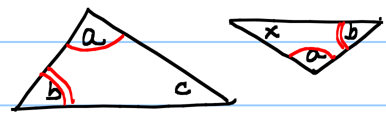
$\cong$ sides, $\cong m\angle s$

SSS
SAS
ASA
HL
AAS

$\sim$ Similar △s

sides proportional
$\cong m\angle s$

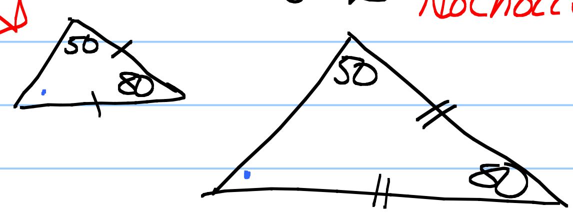
8.3



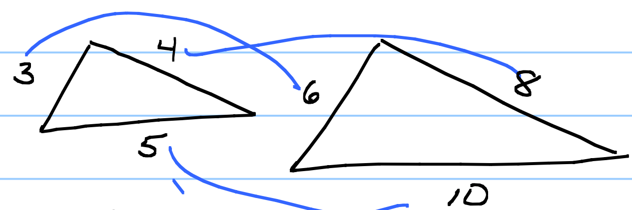
$a+b+c = 180$ $\quad$ $a+b+x = 180°$

$$\begin{aligned} a+b+c &= a+b+x \\ -a-b \quad & \quad -a-b \\ c &= x \end{aligned}$$

No Choice

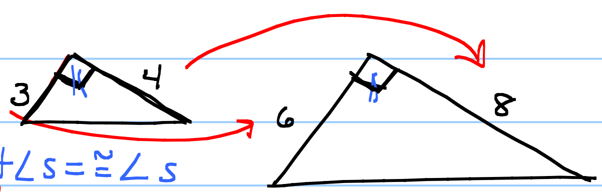


AA~



$\frac{3}{6} = \frac{4}{8} = \frac{5}{10}$

SSS~



rt∠s = $\cong$∠s

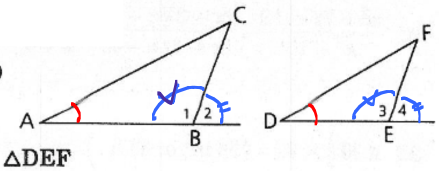
$\frac{3}{6} = \frac{4}{8}$

SAS~

New:
AA~
SSS~
SAS~

1 Given: $\angle A \cong \angle D$

$\angle 2 \cong \angle 4$



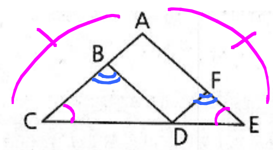
Prove: $\triangle ABC \sim \triangle DEF$

	Statements		Reasons
1	$\angle A \cong \angle D$, $\angle 2 \cong \angle 4$	1	Given
2	$\angle 1$ supp $\angle 2$ $\angle 3$ supp $\angle 4$	2	st$\angle$ $\Rightarrow$ supp$\angle$s
3	$\angle 1 \cong \angle 3$	3	$\angle$s supp to $\cong\angle$s $\Rightarrow$ $\cong\angle$s
4	$\triangle ABC \sim \triangle DEF$	4	AA~

4 Given: $\overline{AC} \cong \overline{AE}$

$\angle CBD \cong \angle EFD$

Prove: $\triangle BCD \sim \triangle FED$

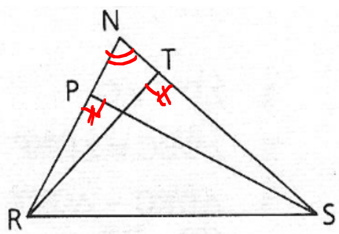


	Statements		Reasons
1	$\overline{AC} \cong \overline{AE}$	1	Given
2	$\angle C \cong \angle E$	2	$\triangle \Rightarrow \triangle$
3	$\angle CBD \cong \angle EFD$	3	Given
4	$\triangle BCD \sim \triangle FED$	4	AA~

12 Given: $\overline{SP}$ alt from S to $\overline{NR}$

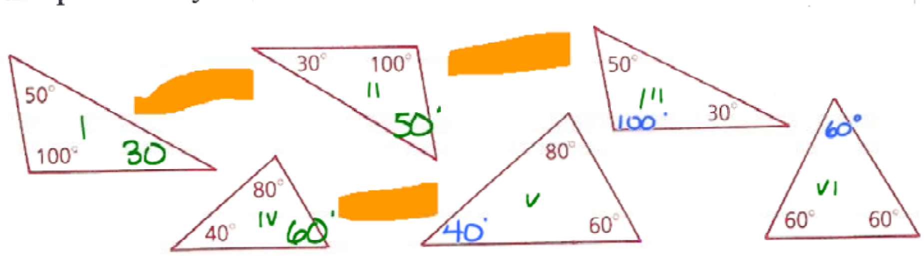
$\overline{RT}$ alt from R to $\overline{NS}$

Concl: $\triangle NRT \sim \triangle NSP$



	Statements		Reasons
1	$\overline{SP}$ alt from S to $\overline{NR}$	1	Given
2	$\overline{RT}$ alt from R to $\overline{NS}$	2	Given
3	$\overline{RT} \perp \overline{NS}$	3	alt $\Rightarrow \perp$ (2)
4	$\overline{SP} \perp \overline{NR}$	4	alt $\Rightarrow \perp$ (1)
5	$\angle RTN$ rt$\angle$	5	$\perp \Rightarrow$ rt$\angle$ (3)
6	$\angle SPN$ rt$\angle$	6	$\perp \Rightarrow$ rt$\angle$ (4)
7	$\angle RTN \cong \angle SPN$	7	rt$\angle$s $\Rightarrow \cong\angle$ (5,6)
8	$\angle N \cong \angle N$	8	Reflexive
9	$\triangle NRT \sim \triangle NSP$	9	AA~

22 If two of the six triangles below are selected at random, what is the probability that the two triangles are similar?



I II   II, III   III IV   IV V   V VI

I III   II IV   III V   IV VI

I IV   II V   III VI

I V   II VI

I VI

$\boxed{\frac{4}{15}}$

1+2+3 .... 97+98+99

4x1   100

8.3: Proving Triangles Similar
2, 3, 6, 8, 10, 16, 19, 20

Note Title 1/20/2016

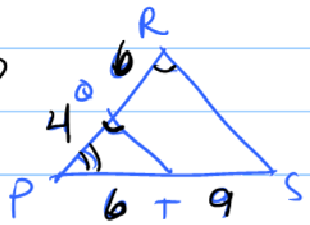
22 See above

20. (a) Slope $\frac{\Delta Y}{\Delta X} = \frac{-1}{2}$

(b) $\frac{-1}{2} = \frac{y}{+3}$ means extremes product

$2y = (-1)(3)$
$y = -3/2$
↳ decreases by $3/2$

(19) a $\triangle PQT \sim \triangle PRS$?



$\frac{PQ}{PT} = \frac{PR}{PS} \rightarrow \frac{4}{6} = \frac{10}{15}$

$\frac{2}{3} = \frac{2}{3}$ yes
prop sds

$\angle P \cong \angle P$ (ref)

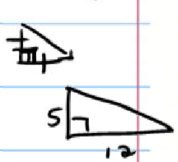
SAS ~

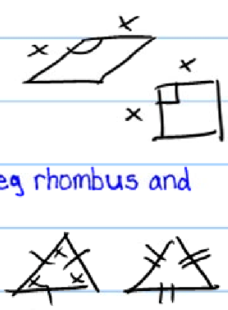
b) corr angles congruent => || ∴ $QT \parallel RS$

Study

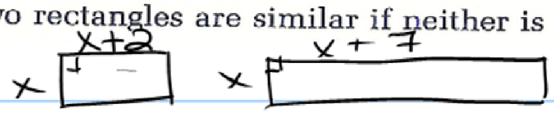
16 Indicate whether the statement is true Always, Sometimes, or Never (A, S, or N).

conv. [
- **a** If two triangles are similar, then they are congruent. a) S
- **b** If two triangles are congruent, then they are similar. b) A
- **c** An obtuse triangle is similar to an acute triangle. c) N
- **d** Two right triangles are similar. d) need 2 angles, S
- **e** Two equilateral polygons are similar. e) congruent sides => S (eg rhombus and square, angles not =)
- **f** Two equilateral triangles are similar. f) A
- **g** Two rectangles are similar if neither is a square. g) S

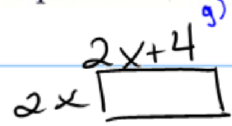




$3x = 180$
$x = 60$



$\frac{x}{x+2} \overset{?}{=} \frac{x}{x+7}$ False



$\frac{x}{x+2} = \frac{2x}{2x+4}$ TRUE

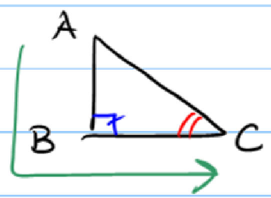
PROOFS: Always copy set up
(diagram
Given + PROVE STMTS)

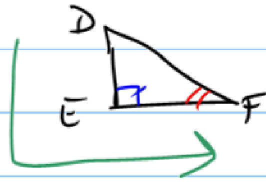
PRIOR Knowledge:
$\cong \triangle s \Rightarrow$ CPCTC

New:
$\sim \triangle s \Rightarrow$ corr sds proportional
$\sim \triangle s \Rightarrow$ corr $\angle s \cong$

1. G: $\angle C \cong \angle F$
$\overline{AB} \perp \overline{BC}$
$\overline{DE} \perp \overline{EF}$

P: $\dfrac{AB}{BC} = \dfrac{DE}{EF}$





POINT OUT:
$\overleftrightarrow{DE}$ (line)
$\overline{DE}$ (seg)
DE (distance)

S.	R.
1. $\overline{AB} \perp \overline{BC}$ & $\overline{DE} \perp EF$	1. GIVEN
2. $\angle ABC$ & $\angle DEF$ rt $\angle S$	2. $\perp \Rightarrow$ RT $\angle S$
A 3. $\angle ABC \cong \angle DEF$	3. RT $\angle S \Rightarrow \cong \angle S$
A 4. $\angle C \cong \angle F$	4. GIVEN
5. $\triangle ABC \sim \triangle DEF$	5. AA $\sim$ (3,4)
6. $\dfrac{AB}{BC} = \dfrac{DE}{EF}$	6. $\sim \triangle s \Rightarrow$ corr sds prop

* ORDER MATTERS