Solve for X:

1) $\dfrac{X+6}{3} = \dfrac{2X-1}{4}$

2) $\dfrac{3}{X+1} = \dfrac{X+2}{10}$

3) $BC:AB:AC$ is $2:3:4$

Triangle with vertex B at top, A at bottom left, C at bottom right. Side $AB = 7+X$, side $BC = 2X+6$, side $AC = 7-X$.
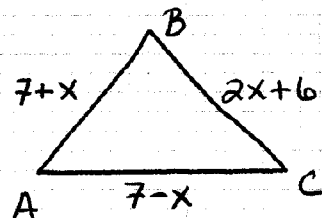
Similarity

4) If the ratio of the perimeters of $\square ABCD$ to $\square PQRS$ is $\dfrac{4}{3}$, what is $\dfrac{AD}{PS} = ?$

5) If $\dfrac{SR}{CD} = \dfrac{3}{4}$ & the perimeter of $\square PQRS = 10$, what is the perimeter of $\square ABCD$?

6) always, sometimes, never

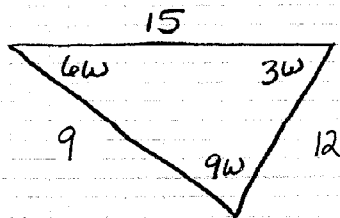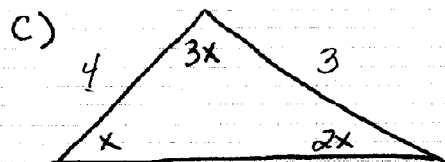   a) 2 isosceles $\triangle$'s are ___ similar.

   b) 2 congruent $\triangle$'s are ___ similar.

   c) 2 congruent isosceles $\triangle$'s are ___ similar.
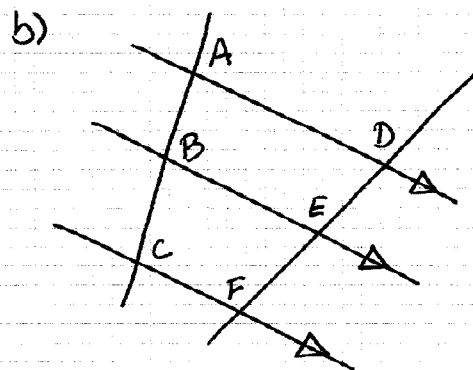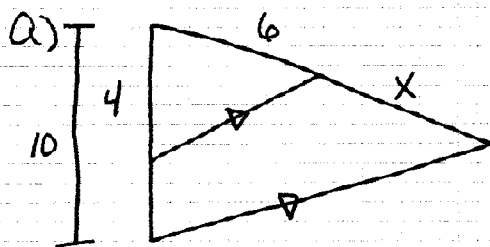
   d) 2 squares are ___ similar.

7) Which $\triangle$'s are similar?

   a) $\triangle ABC$ $2:2:3$, $\triangle DEF$ $6:6:12$

   b) $\triangle ABC$ $4:8:10$, $\triangle DEF$ $12:15:6$

   c)

First triangle with sides: 4, $3x$, 3, x, $2x$. Second triangle with sides: 15, $6w$, $3w$, 9, $9w$, 12.

8) Find x:

a)

Marked: 10, 4, 6, x

b)

$DE = 3, EF = 4, AC = 10, AB = x$

c)

Marked: 10, 5, 15, x

d)

Marked: x, 40, 30, 10

9)

Marked: R, S, Q, T, 15, 25, 20

a) Show that $\triangle RSQ \sim \triangle RQT$
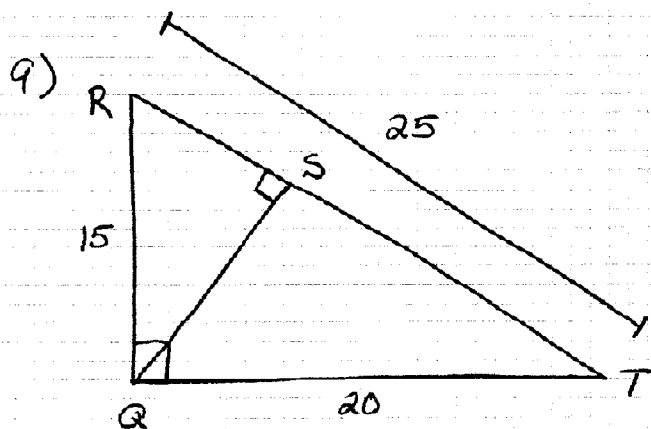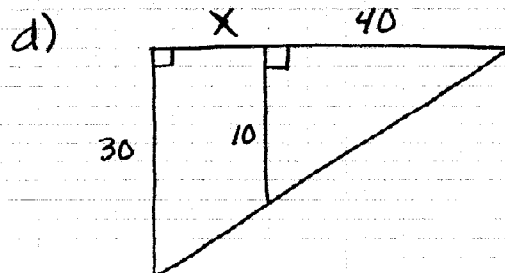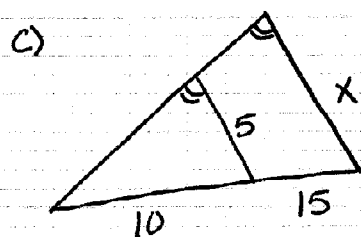
b) what is the scale factor of the $\triangle$'s in part a.

c) is $\triangle RSQ \sim \triangle QST$?

d) find QS.

Answers:

1) $x = \dfrac{27}{2}$ 2) $x = \{-7, 4\}$ 3) $x = -1$ 4) $\dfrac{4}{3}$

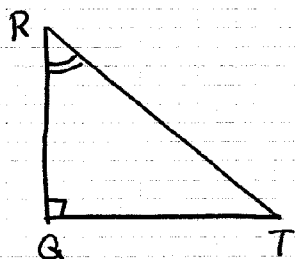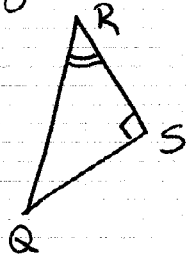5) $\dfrac{40}{3}$

6) a) sometimes b) always

c) always   d) always
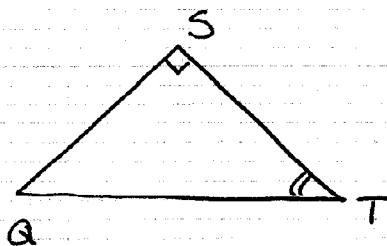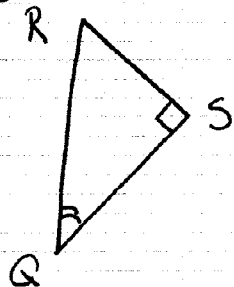
Answers:

7) a) no   b) yes   c) yes

8) a) X = 9   b) X = $\frac{30}{7}$ c) X = 12.5   d) X = 80

9) a) yes (AA)

b) SF = $\frac{3}{5}$ $\left(\frac{RQ}{RT}\right)$

c) yes (AA)

from part a, we know that
∡RQS ≅ ∡RTQ (by the
3rd ∡'s thm), so we
get the ≅ ∡'s in this case
from part a.

d) from △RSQ ~ △RQT, we know that $\frac{RQ}{RT} = \frac{QS}{QT}$.

so, QS = 12.