1 - 2
Linear Measure
and Precision

line segment: can be measured ★ ★ ★
because it has two endpoints
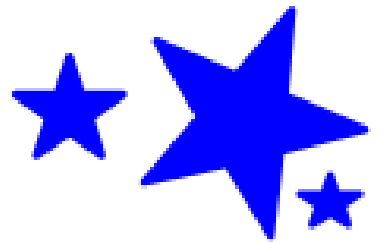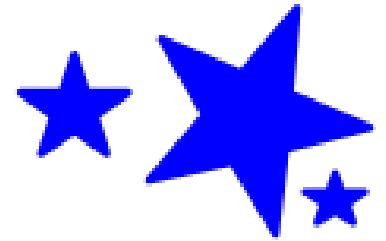
A   B

$\overline{AB}$ or $\overline{BA}$ $\longrightarrow$ naming
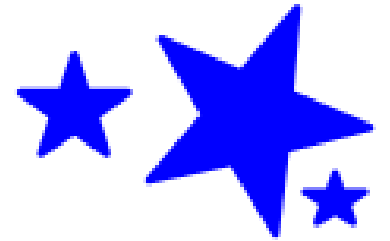
AB or BA $\longrightarrow$ length/measure
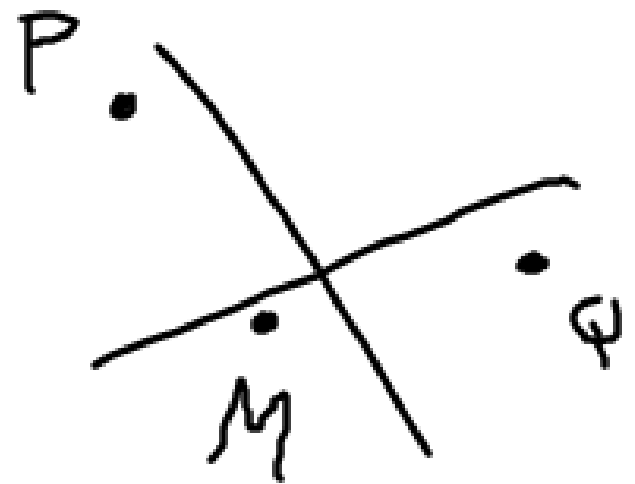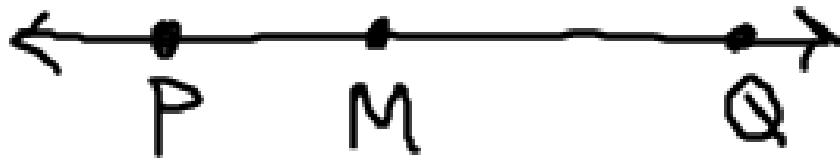
betweenness of points:

between _any_ two points,
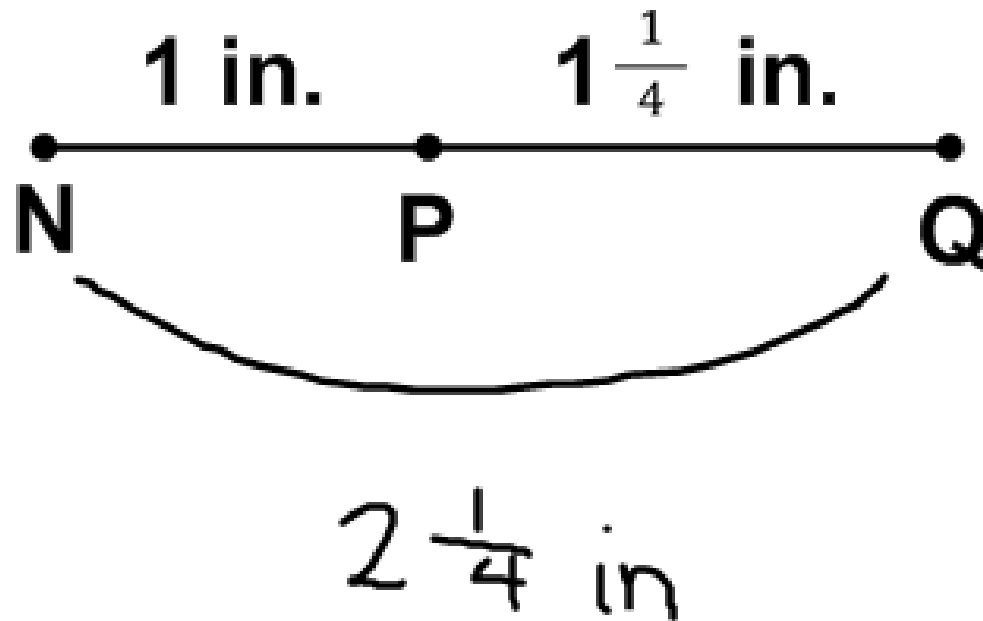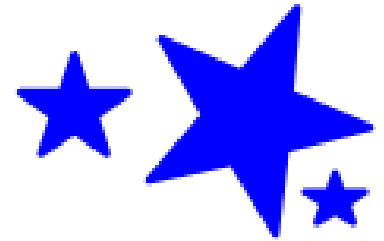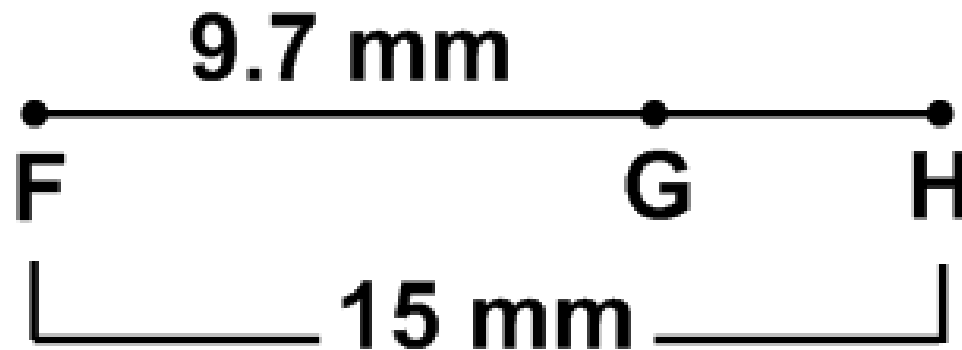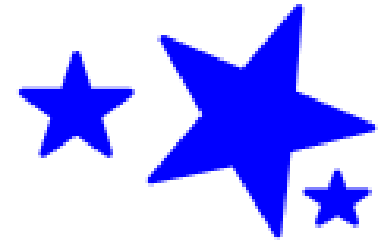there is always another point

between:

Point M is <u>between</u> points P and Q
if M, P, and Q are collinear and
PM + MQ = PQ.

Ex: Find NQ.

1 in. $1\frac{1}{4}$ in.

N   P   Q

$2\frac{1}{4}$ in

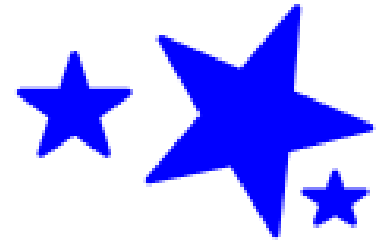**Ex: Find GH.**

9.7 mm

F   G   H

15 mm
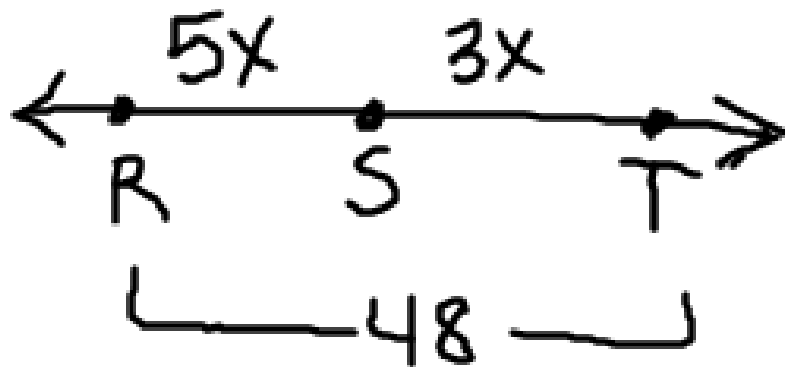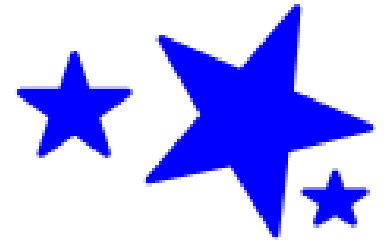
$15 - 9.7 = 5.3 \text{ mm}$

***Special Note:

one of the following is true:

a.) $XY > YZ$

b.) $XY < YZ$

c.) $XY = YZ$

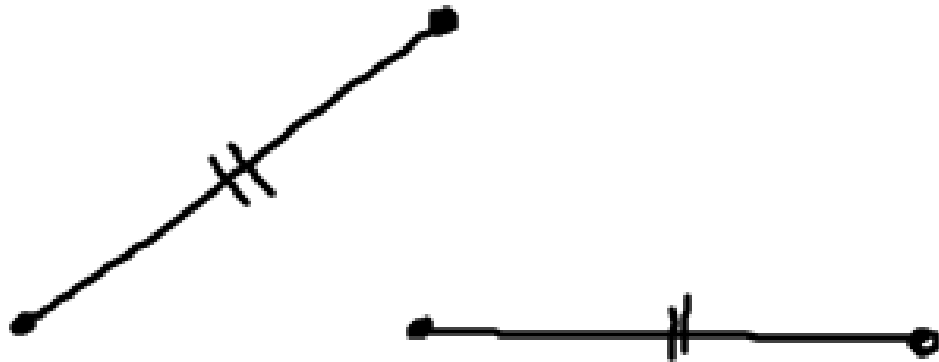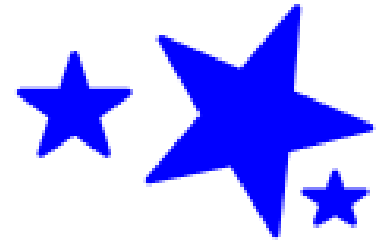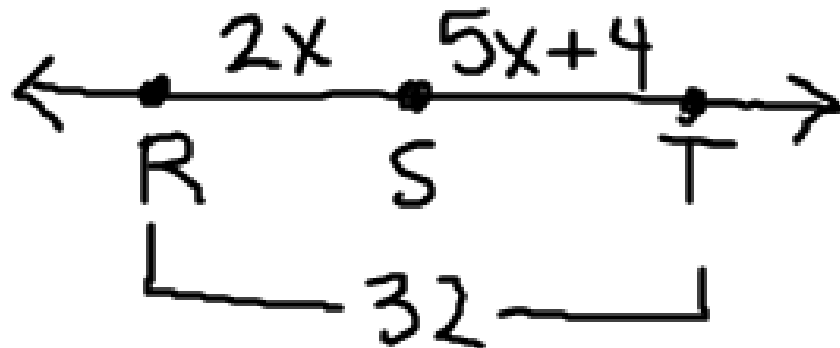**Ex:** Find x and RS if S is between R and T and RS = 5x, ST = 3x, and RT = 48.

$$5x \quad\quad 3x$$

R   S   T

$$\longmapsto 48 \longmapsto$$

$$8x = 48$$

$$x = 6 \quad\quad RS = 30$$

congruent: same measure/length

Ex: Find x and RS if S is between R and T and RS = 2x, ST = 5x + 4, and RT = 32.
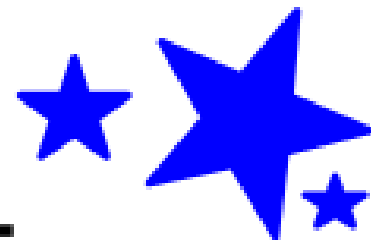
$$2x + 5x + 4 = 32$$

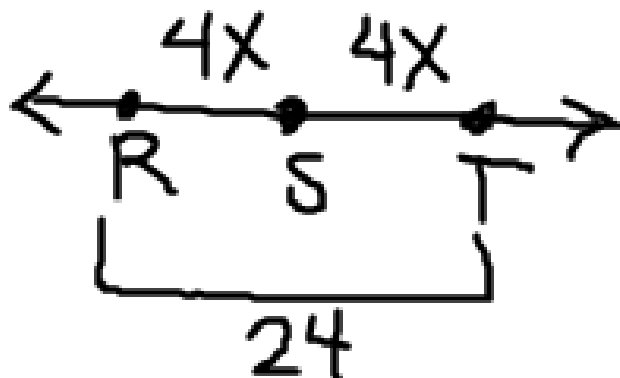$$7x + 4 = 32$$
$$ -4 \quad -4$$

$$7x = 28$$

$$x = 4$$

$$RS = 8$$

Ex: Find x and RS if S is between R and T and RS = 4x, RS ≅ ST, and RT = 24.
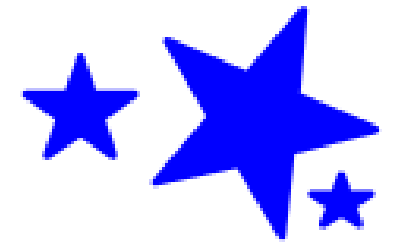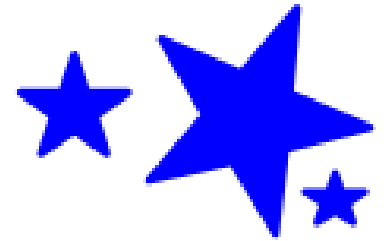
congruent

$$8x = 24$$

$$x = 3$$

$$RS = 12$$

Homework:

p. 16 # 7-15 all, 29-39 odd

EXTRA CREDIT
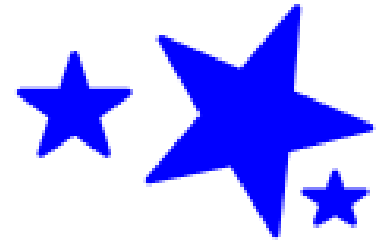****Memorize formulas for Friday****

Distance Formula
The distance d between two points with coordinates (x_1, y_1) and (x_2, y_2) is given by

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint

The coordinates of the midpoint of a segment whose endpoints have coordinates (x_1, y_1) and (x_2, y_2) are

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

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