Homework 8/11, due tomorrow
(Please complete on a separate sheet of paper, and use the notes online if you need to!)

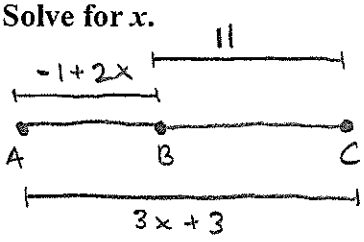
You will do #2, 4, 5, 6-9, 11, 13

Do as much as you can, and we'll go over this in class tomorrow

Points A, B, and C are collinear. Point B is between A and C. Solve for x.

EXAMPLE

1) $AC = 3x + 3$, $AB = -1 + 2x$, and $BC = 11$. Find x. DRAW



We know by segment addition that $AB + BC = AC$; So, we can write an equation:

$(-1+2x) + 11 = 3x + 3$

$2x + 10 = 3x + 3$ → rearrange to get

$-2x + 10 = 3x + 3$
$-2x \quad -3 \quad -2x \quad -3$
$7 = x$

$x = 7$

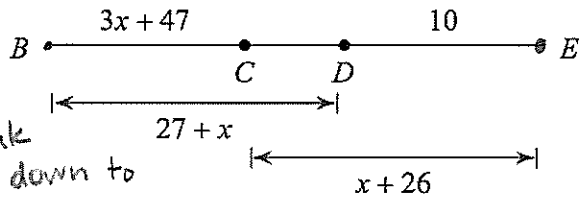
YOUR TURN

2) $AC = 22$, $BC = x + 14$, and $AB = x + 10$. Find x.

Find the length indicated.

EXAMPLE

3) Find CE



We must break this problem down to find x. We know that $BC + CE = BE$

And we know $BD + DE = BE$ $\boxed{3x+47 + x+26 = BE}$ ①

$\boxed{27+x+10 = BE}$ ②

Set equations ① & ② equal to each other.

$27 + x + 10 = 3x + 47 + x + 26$

Simplify $37 + x = 4x + 73$

Rearrange $-37 \quad -4x \quad -4x \quad -37$

$\frac{-3x}{-3} = \frac{36}{-3}$

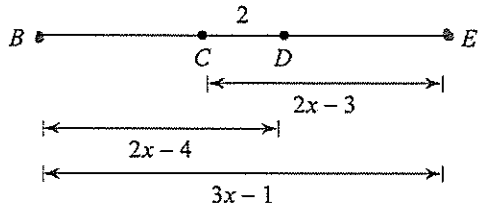
$x = -12$

$CE = x + 26$ ↓ Sub. $x = -12$

$CE = (-12) + 26 = 14$ $\boxed{CE = 14}$

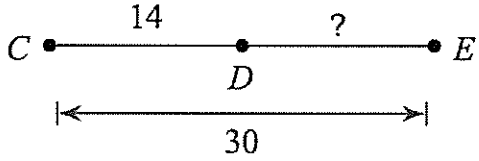
YOUR TURN

4) Find BD



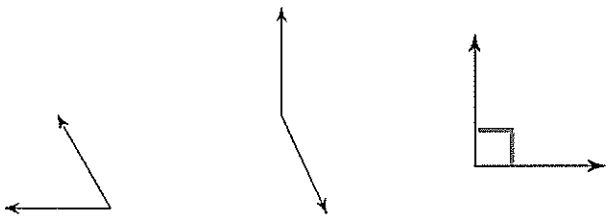
YOUR TURN

5) Find DE



Using the class notes on vocabulary, classify each angle as obtuse, acute, or right. (see link on website for notes)

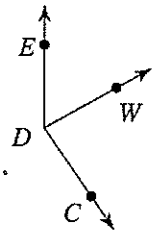
6)



7) 16° 8) 90° 9) 97°

EXAMPLE

10) Find $m\angle WDC$ if $m\angle EDC = 145°$ and $m\angle EDW = 61°$.



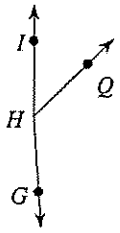
By angle addition, we know $m\angle EDW + m\angle WDC = m\angle EDC$.

rearrange to solve for $m\angle WDC = m\angle EDC - m\angle EDW$

$m\angle WDC = 145° - 61° = 84°$

YOUR TURN

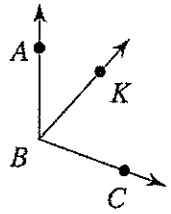
(11) Find $m\angle IHQ$ if $m\angle IHG = 176°$ and $m\angle QHG = 130°$.



EXAMPLE

12) $m\angle ABC = 17x + 8$, $m\angle ABK = 42°$, and $m\angle KBC = 12x - 4$. Find $m\angle ABC$.

By angle addition, we know $m\angle ABK + m\angle KBC = m\angle ABC$.



So, $(42) + (12x - 4) = (17x + 8)$

Solve for x: $-12x - 8 \quad -12x - 8$

$42 - 4 - 8 = 5x$

$\frac{30}{5} = \frac{5x}{5} \Rightarrow \boxed{x = 6}$

Now, plug in $x = 6$ to find $m\angle ABC$

$m\angle ABC = 17(6) + 8 = 110$

$\boxed{m\angle ABC = 110°}$

YOUR TURN

(13) $m\angle GFN = 4x + 10$, $m\angle NFE = 14x + 3$, and $m\angle GFE = 157°$. Find $m\angle NFE$.