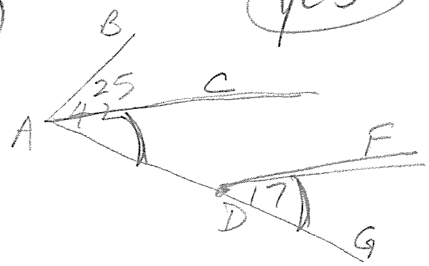
Prove Lines Parallel Key

(10) Yes



Assume parallel

Then corresp. ∡s should =.

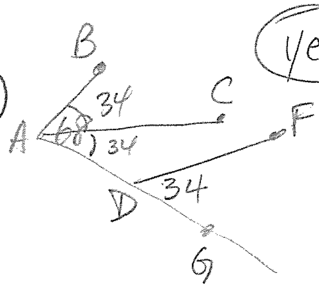
Check them out:

$m\angle CAD = 42 - 25 = 17$,

So $m\angle CAD = m\angle FDG$.

Therefore $\overline{AC} \parallel \overline{DF}$. Answer

(11) Yes



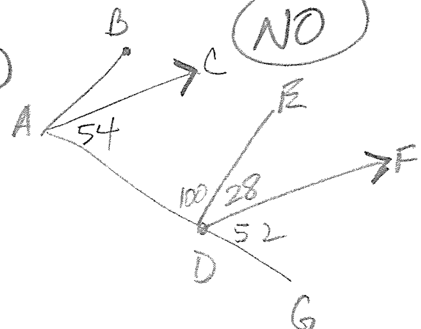
Yes, $\overline{AC} \parallel \overline{DF}$

b/c $m\angle CAD = 34$.

So $m\angle CAD = m\angle FDG$.

Corresp. ∡s ≅.

(12) NO

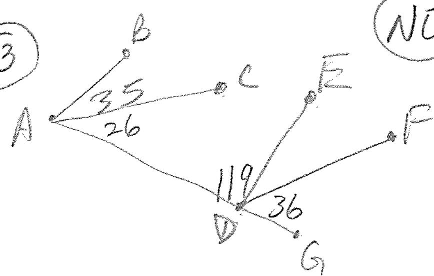


$m\angle FDG = 180 - 128 = 52$

Since $m\angle CAD \neq m\angle FDG$,

$\overline{AC}$ is not parallel $\overline{DF}$.

(13) NO



$m\angle CAD = 61 - 35 = 26$

$m\angle FDG = 180 - 144 = 36$

Since $m\angle CAD \neq m\angle FDG$,

$\overline{AC}$ is NOT parallel $\overline{DF}$.

(14) $m\angle 1 = m\angle 4$

$3x + 13 = 4x - 6$

$13 = x - 6$

$19 = x$

(15) $m\angle 3 + m\angle 5 = 180$

$4x + 2 + 8x - 2 = 180$

$12x = 180$

$x = 15$

(16) $m\angle 2 = m\angle 5$

$\frac{2}{3}x - 16 = 24$

$\frac{2}{3}x = 40$

$x = 60$

(17) $m\angle 1 = m\angle 6$

$2x + 12 = \frac{3}{4}x + 27$

$1\frac{1}{4}x = 15$

$x = 12$

(18) $m\angle 2 = m\angle 5$

$x^2 + 7x = 9x + 3$

$x^2 - 2x - 3 = 0$

$(x - 3)(x + 1) = 0$

$x = 3$ $x = -1$ OMIT

(19) $m\angle 3 + m\angle 5 = 180$

$x^2 + 8x + 4x + 20 = 180$

$x^2 + 12x - 160 = 0$

$(x + 20)(x - 8) = 0$

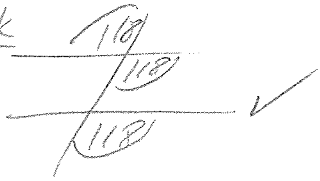
$x = -20$ OMIT $x = 8$

(21) $\boxed{\begin{aligned} x+y &= x-y \\ x-y &= 118 \end{aligned}} \rightarrow 2y=0$

$y=0$

$x=118$

ck



(22) $\boxed{\begin{aligned} 2x-y &= x+2y \\ x+2y &= 75 \end{aligned}} \rightarrow x-3y=0$

$$\begin{aligned} -x+3y &= 0 \\ \hline 5y &= 75 \end{aligned}$$

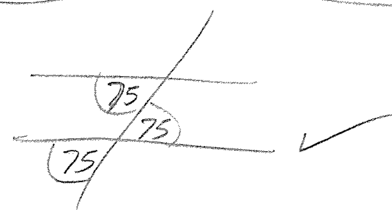
$y=15$

$x+2y=75$

$x+30=75$

$x=45$

ck



(23) $\boxed{\begin{aligned} 6x-3y &= 2x-8y \\ 2x-8y &= 126 \end{aligned}} \rightarrow 4x+5y=0$

$$\begin{aligned} -4x+16y &= -252 \\ 4x+5y &= 0 \\ \hline 21y &= -252 \end{aligned}$$

$y=-12$

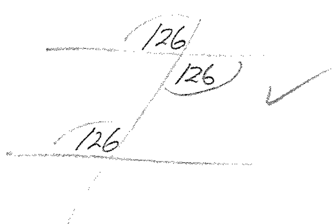
$2x-8y=126$

$2x-8(-12)=126$

$2x=30$

$x=15$

ck



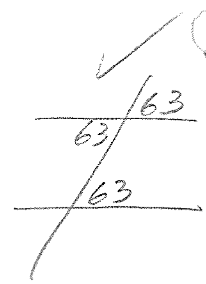
(24) $\boxed{\begin{aligned} x-3y &= 63 \\ 7x-2y+2 &= 63 \end{aligned}} \rightarrow 7x-2y=61$

$$\begin{aligned} 7x-2y &= 61 \\ -7x+21y &= -441 \\ \hline 19y &= -380 \end{aligned}$$

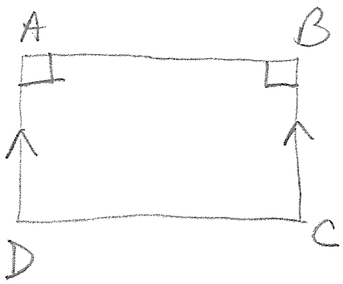
$y=-20$

$x-3(-20)=63$

$x=3$



(26)

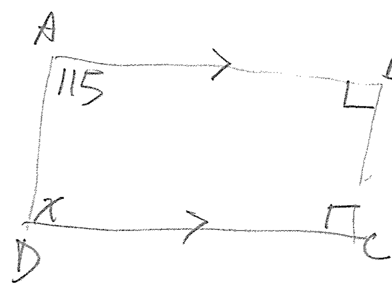


$\overline{AD} \parallel \overline{BC}$

(1) Two lines $\perp$ to same line are parallel.

(2) 2 lines with same side interior $\angle$s supplementary $\rightarrow$ parallel lines.

(27)

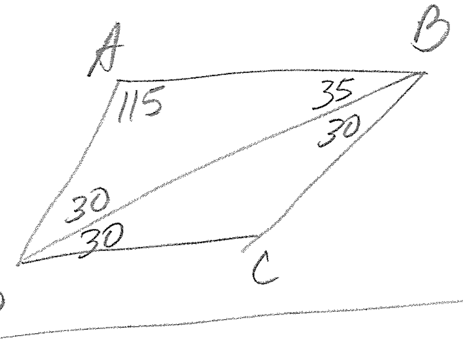


$$\begin{array}{r} 180 \\ -115 \\ \hline 65 \end{array}$$

$\boxed{m\angle ADC = 65}$

Lesson 2 hw Key (continued)

28

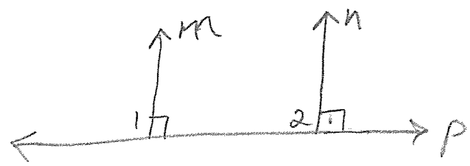


$\overline{AD} \parallel \overline{BC}$

Thm

Given: $m \perp p$, $n \perp p$

Prove: $m \parallel n$



① $m \perp p$ → ② $\angle 1$ is rt. → ③ $m\angle 1 = 90$ } → ④ $m\angle 1 = m\angle 2$ → ⑤ $\angle 1 \cong \angle 2$ → ⑥ $m \parallel n$

$n \perp p$ → $\angle 2$ is rt. → $m\angle 2 = 90$ }

① Given

② $\perp$ lines form Rt. $\angle$s.

③ Rt $\angle$ measures $90°$.

④ Substitution Prop.

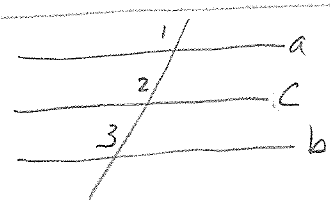
⑤ $\cong$ $\angle$s have $=$ measures.

⑥ 2 lines & tran & corresp. $\angle$s $\cong$ → 2 $\parallel$ lines.

Thm

Given: $a \parallel c$, $b \parallel c$

Prove: $a \parallel b$



① $a \parallel c$ → ② $\angle 1 \cong \angle 2$ } → ③ $\angle 1 \cong \angle 3$ → ④ $a \parallel b$

$b \parallel c$ → $\angle 2 \cong \angle 3$ }

① Given

② 2 $\parallel$ lines & trans. → corresp. $\angle$s $\cong$.

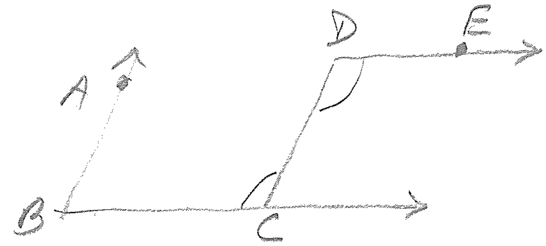
③ Transitive Prop.

④ 2 lines & trans. & Corresp $\angle$s $\cong$ → 2 $\parallel$ lines.

---

over →

Proof: Prove: $\overline{AB} \parallel \overline{DC}$



① $\angle BCD \cong \angle CDE$ → ② $m\angle BCD = m\angle CDE$
③ $m\angle B + m\angle D = 180$
→ ④ $m\angle B + m\angle BCD = 180$

→ ⑤ $\angle$s supp $\angle BCD$ → ⑥ $\overline{AB} \parallel \overline{DC}$

① Given
② $\cong$ $\angle$s have = measures
③ Given
④ Substitution Prop
⑤ Supp $\angle$s are 2 $\angle$s-totals 180.
⑥ 2 lines & trans & same-side int. $\angle$s supp → 2 ∥ lines.