

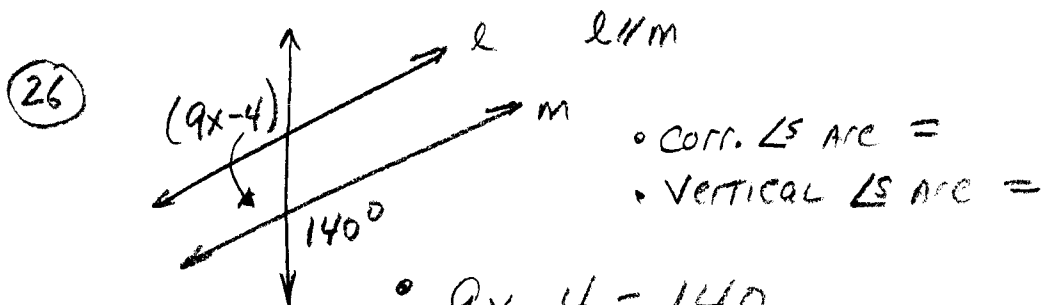
ON A BLANK piece of computer paper, using ONLY Euclid's tools, CONSTRUCT A "PARALLEL LINE Through A Point NOT ON THE LINE." Properly label your work in the upper right-hand corner.

(EX)



given line, construct a line $\parallel$ to it through a point NOT ON THIS line

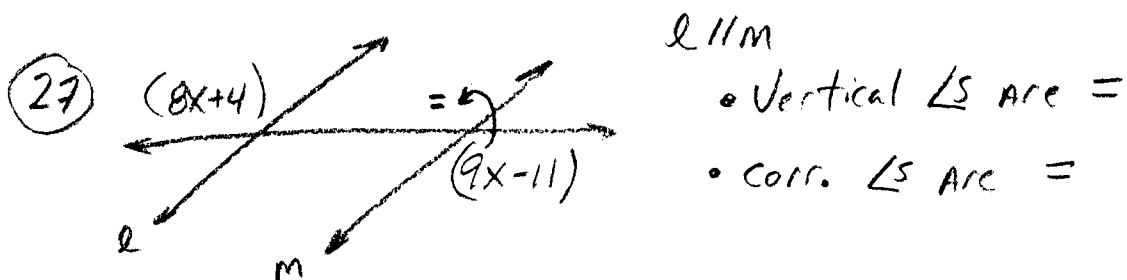
• Homework Review



$$\therefore 9x - 4 = 140$$

$$9x = 144$$

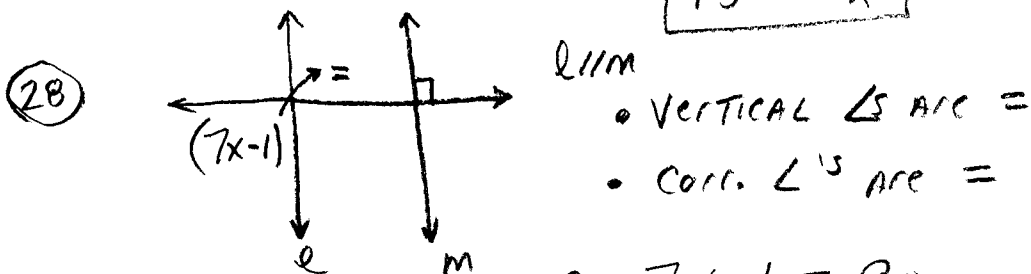
$$x = 16$$



$$\therefore \begin{array}{r} 8x + 4 \\ - 8x \end{array} = \begin{array}{r} 9x - 11 \\ - 8x \end{array}$$

$$4 = x - 11$$

$$15 = x$$



$$\therefore 7x - 1 = 90$$

$$7x = 91$$

$$x = 13$$

29

$l \parallel m$

- Corr. $\angle$ ARE =

$$\therefore 4-5x = 7x+100$$

$$\quad \quad +5x \quad +5x$$

$$4 = 12x + 100$$

$$\quad \quad \quad -100$$

$$\frac{-96}{12} = \frac{12x}{12}$$

$$x = -8$$

30

$l \parallel m$

- Vertical $\angle$ ARE =
- Corr. $\angle$ ARE =

$$\therefore 5x + 90 = 14x + 9$$

$$81 = 9x$$

$$x = 9$$

31

$l \parallel m$

- Vert. $\angle$ ARE =
- Corr. $\angle$ ARE =

$$\therefore 178 - 3x = 7x - 38$$

$$\quad \quad +3x \quad +3x$$

$$178 = 10x - 38$$

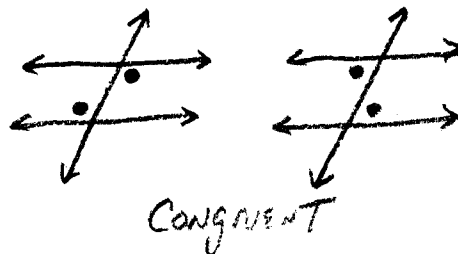
$$+38 \quad \quad +38$$

$$216 = 10x$$

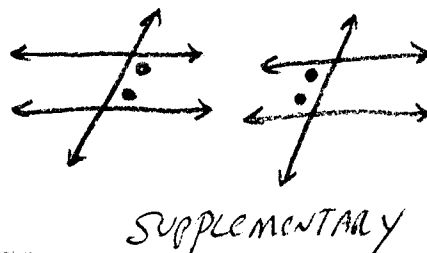
$$x = \frac{216}{10} = \frac{108}{5} = 21.6$$

Vocabulary of Parallel Lines Cut by a Transversal

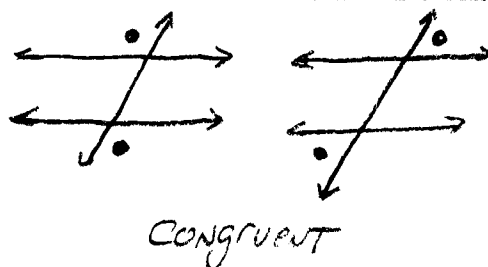
Alternate Interior $\angle$ s



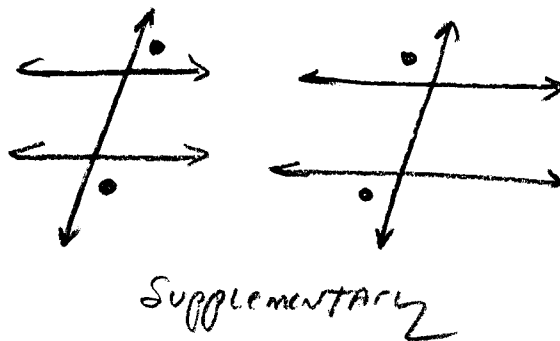
Consecutive Interior $\angle$ s



Alternate Exterior $\angle$ s

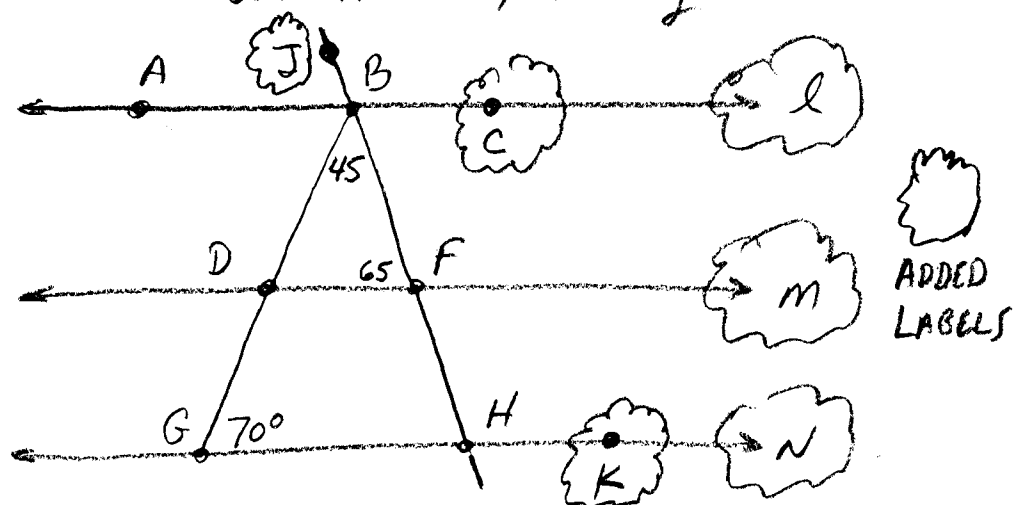


Consecutive Exterior $\angle$ s



(EX1) IDENTIFY // LINES
pg 152

GIVEN: $\overline{BG}$ bisects $\angle ABH$
Which lines, if any, are //



$$m\angle BDF = 180 - (45 + 65) = 180 - 110 = 70^\circ$$

$$\angle BDF \cong \angle DGH, m \parallel n \text{ since corr. } \angle s \cong$$

$$m\angle BHG = 180 - (70 + 45) = 180 - 115 = 65^\circ$$

$$m\angle FHK = 180 - 65 = 115^\circ$$

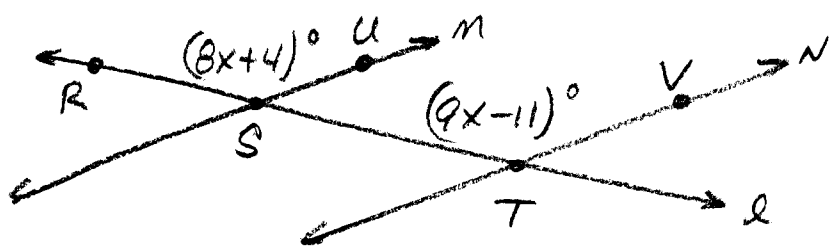
Since $\overline{BG}$ bisects $\angle ABH$, $m\angle ABD = 45^\circ$
(cuts in half)

$$\therefore m\angle FBC = 180 - (45 + 45) = 90^\circ$$

But $\angle FBC$ and $\angle FHK$ are consecutive interior $\angle s$
which must be supplementary for $l \parallel m$
but $90 + 115 \neq 180^\circ \therefore l \nparallel m, l \nparallel n$

Ex 2
Pg 153

Find x and $m\angle RSU$ if $m \parallel n$



$$m \parallel n, \quad 8x+4 = 9x-11 \quad \text{corr. } \angle s \cong$$

$$\quad \quad \quad -8x \quad \quad -8x$$

$$\quad \quad \quad 4 = x - 11$$

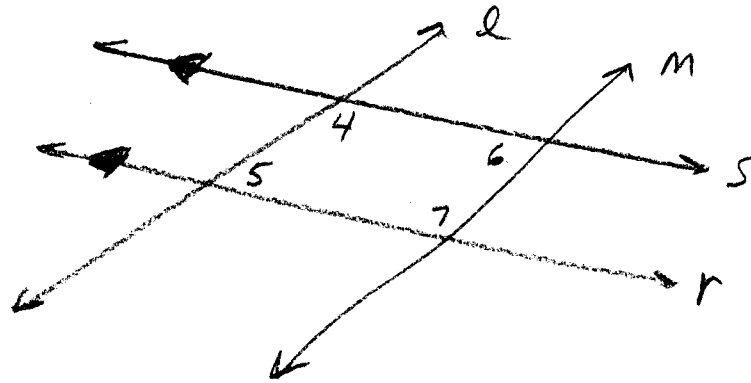
$$\boxed{15 = x}$$

$$\begin{aligned} * \therefore m\angle RSU &= (8x+4)^\circ \\ &= 8(15) + 4 \\ &= \boxed{124^\circ} = m\angle RSU \end{aligned}$$

* WATCH OUT, x IS NOT THE MEASURE
of any of these $\angle$ s, make sure you
ANSWER WHAT IS ASKED for (ACT Tip!)

EX3
Pg 153

Prove lines $l \parallel m$, Given: $r \parallel s$, $\angle 5 \cong \angle 6$
Prove: $l \parallel m$

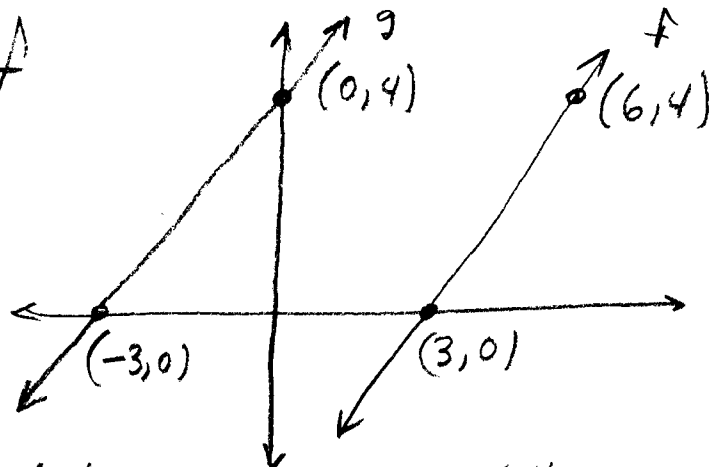


$r \parallel s \Rightarrow \angle 4, \angle 5$ Supplementary, Consec. Int. $\angle 5$
 $\angle 6, \angle 7$ Supplementary, Consec. Int. $\angle 5$

$\angle 5 \cong \angle 6$ Given

$\therefore \angle 5, \angle 7$ Supplementary $\therefore l \parallel m$ Since
Consecutive Int. $\angle 5$ are supplementary

EX4 Is $g \parallel f$



Slope of $f = +\frac{4}{3}$

Slope of $g = +\frac{4}{3}$

Same Slopes $\therefore g \parallel f$

Homework: Pg 154-156 # 4-7, 11, 38, 39.