

Page 407, # 1-25

1. Polygon - Octagon

2. Not a polygon!

3. Not a polygon!

4. Polygon - Pentagon

5. $S = 180(16-2)$
 $S = 180(14)$
 $S = 2520^\circ$

6. $S = 180(6-2)$ $\frac{720^\circ}{6} = 120^\circ$
 $S = 180(4)$
 $S = 720^\circ$

7. $8z + 7z + 11z + 14z = 360^\circ$
 $40z = 360^\circ$
 $z = 9$
 $72^\circ, 63^\circ, 99^\circ, 126^\circ$

8. $S = 180(10-2)$ $\frac{1440^\circ}{10} = 144^\circ$ $\frac{360^\circ}{10} = \underline{\underline{36^\circ}}$
 $S = 180(8)$
 $S = 1440^\circ$ $180 - 144 = \underline{\underline{36^\circ}}$ OK

9. $2(13.5) = 27 \text{ cm}$

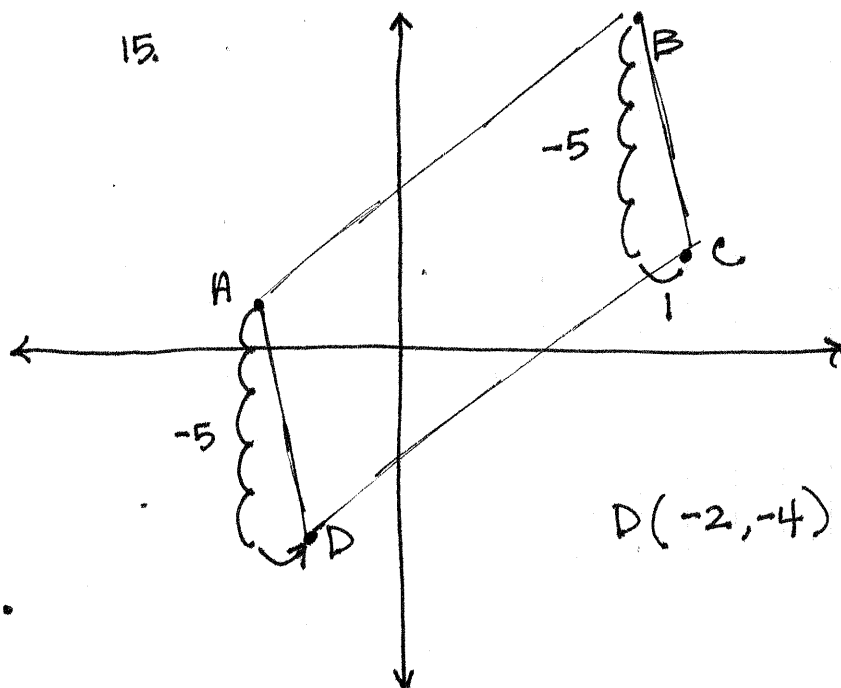
10. 17 cm

11. 13.5 cm

12. $m\angle JKL = 78^\circ$

13. $m\angle JML = 78^\circ$

14. $m\angle KLM = 102^\circ$



$$\begin{aligned}
 16. \quad 6b - 7 &= 10b - 19 \\
 -7 &= 4b - 19 \\
 12 &= 4b \\
 b &= 3 \\
 WX &= 6(3) - 7 = 18 - 7 = \underline{\underline{11}}
 \end{aligned}$$

$$\begin{aligned}
 17. \quad 10(3) - 19 \\
 YZ &= 30 - 19 = \underline{\underline{11}}
 \end{aligned}$$

$$\begin{aligned}
 18. \quad 5a - 39 + 3a + 27 &= 180 \\
 8a - 12 &= 180 \\
 8a &= 192 \\
 a &= 24 \\
 m\angle X &= 5(24) - 39 = \underline{\underline{81^\circ}}
 \end{aligned}$$

$$19. \quad m\angle W = 3(24) + 27 = \underline{\underline{99^\circ}}$$

$$\begin{aligned}
 20. \quad 8y - 8 &: \Rightarrow 8(4.5) - 8 = \overset{RV}{28} \\
 6y + 1 &: \Rightarrow 6(4.5) + 1 = \overset{ST}{28}
 \end{aligned}
 \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \overline{ST} \cong \overline{RV} \quad \checkmark$$

$$\begin{aligned}
 7x + 6 &: \Rightarrow 7(6) + 6 = \overset{RS}{48} \\
 9x - 6 &: \Rightarrow 9(6) - 6 = \overset{VT}{48}
 \end{aligned}
 \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \overline{RS} \cong \overline{VT} \quad \checkmark$$

\therefore RSTV is a
 parallelogram
 (BOTH PAIRS
 OPP. SIDES ARE \cong)

$$\begin{aligned}
 21. \quad 12n + 11 + 7m - 29 &= 180^\circ \\
 12(9.5) + 11 + 7(12) - 29 &= 180^\circ \\
 114 + 11 + 84 - 29 &= 180^\circ \\
 180^\circ &= 180^\circ \quad \checkmark
 \end{aligned}$$

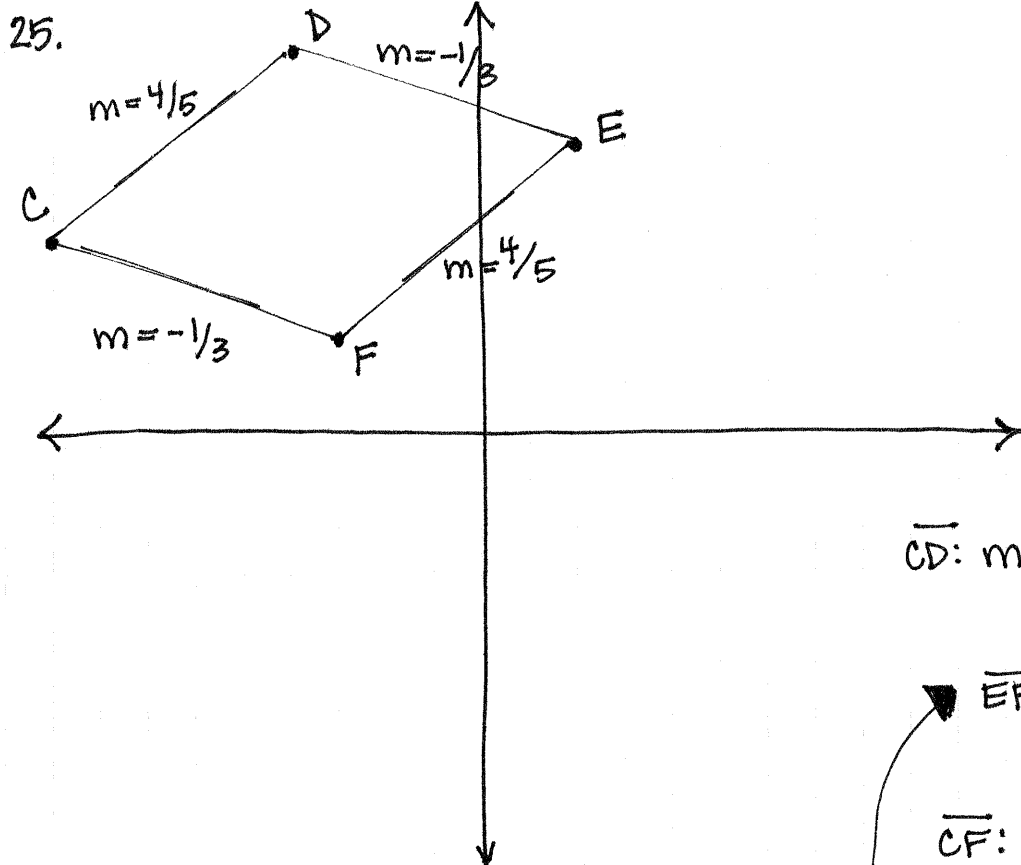
$$\begin{aligned}
 12n + 11 + 2m + 31 &= 180^\circ \\
 12(9.5) + 11 + 2(12) + 31 &= 180^\circ \\
 114 + 11 + 24 + 31 &= 180^\circ \\
 180^\circ &= 180^\circ \quad \checkmark
 \end{aligned}$$

\therefore GHIK is a
 parallelogram
 (an angle and its
 consecutive angles are
 supplementary!)

22. yes - By def. (opp sides are \parallel .)

23. no - need more info.

24. no - need more info.



$$\overline{CD}: m = \frac{8-4}{-4-(-9)} = \frac{4}{5}$$

$$\overline{FE}: m = \frac{2-6}{-3-2} = \frac{-4}{-5} = \frac{4}{5}$$

$$\overline{CF}: m = \frac{2-4}{-3-(-9)} = \frac{-2}{6} = -\frac{1}{3}$$

$$\overline{DE}: m = \frac{6-8}{2-(-4)} = \frac{-2}{6} = -\frac{1}{3}$$

Multiple ways to do this one!

① By def - show opposite sides are \parallel .

② show opposite sides are \cong !

③ show one pair of sides are both parallel $\& \cong$.

\therefore CDEF is
a parallelogram
(Both pairs of
opp. sides are
 \parallel .)