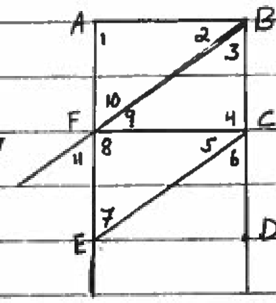
Key

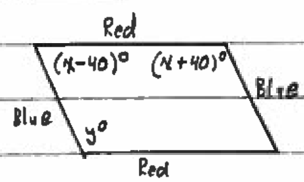
A#25 ① p.87-88 WE #1-16, 18, 24, 27
② p.87-88 WE # 19-21, 25-26, 28-29, 31

For #1-16



① p.87-88 WE #1-16, 18, 24, 27

1. $\angle 2 \cong \angle 9 \rightarrow \overline{AB} \parallel \overline{FC}$ [Alt. Int. ∠s Conv.]
2. $\angle 6 \cong \angle 7 \rightarrow \overline{BD} \parallel \overline{AE}$ [Alt. Int. ∠s Conv.]
3. $m\angle 1 = m\angle 8 = 90° \rightarrow \overline{AB} \parallel \overline{FC}$ [In a plane, 2 lines ⊥ to same line are ∥. or Corr. ∠s Conv.]
4. $\angle 5 \cong \angle 9 \rightarrow \overline{BF} \parallel \overline{CE}$ [Alt. Int. ∠s Conv.]
5. $m\angle 2 = m\angle 5$ [Not enough Info.]
6. $\angle 3 \cong \angle 11 \rightarrow \overline{AE} \parallel \overline{BD}$ [Corr. ∠s Conv.]
7. $m\angle 1 = m\angle 4 = 90°$ [Not enough Info.]
8. $m\angle 10 = m\angle 11$ [Not enough Info.]
9. $m\angle 8 + m\angle 5 + m\angle 6 = 180° \rightarrow \overline{AE} \parallel \overline{BD}$ [S.S. Int. ∠s Conv.]
10. $\overline{FC} \perp \overline{AE}$ and $\overline{FC} \perp \overline{BD} \rightarrow \overline{AE} \parallel \overline{BD}$ [In a plane, 2 lines ⊥ to same line are ∥.]
11. $m\angle 5 + m\angle 6 = m\angle 9 + m\angle 10 \rightarrow \overline{AE} \parallel \overline{BD}$ [Alt. Int. ∠s Conv.]
12. ∠7 and ∠EFB are supp. $\rightarrow \overline{BF} \parallel \overline{CE}$ [S.S. Int. ∠s Conv.]
13. ∠2 and ∠3 are complementary and $m\angle 1 = 90° \rightarrow \overline{AE} \parallel \overline{BD}$ [In a plane, 2 lines ⊥ to same line are ∥.]
14. $m\angle 2 + m\angle 3 = m\angle 4$ [Not enough Info.]
15. $m\angle 7 = m\angle 3 = m\angle 10 \rightarrow$ ① $\overline{AE} \parallel \overline{BD}$ [Alt. Int. ∠s Conv.] ② $\overline{BF} \parallel \overline{CE}$ [Corr. ∠s Conv.]
16. $m\angle 4 = m\angle 8 = m\angle 1 \rightarrow$ ① $\overline{AE} \parallel \overline{BD}$ [Alt. Int. ∠s Conv.] ② $\overline{AB} \parallel \overline{CF}$ [Corr. ∠s Conv.]

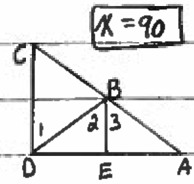
18. 

① For the red lines to be ∥, $y + (x-40) = 180°$ [S.S. Int. ∠s Conv.]
② For the blue lines to be ∥, $x - 40 + x + 40 = 180°$ ["]

Solve ②: $2x = 180$ Solve ① if $x = 90$: $y + (90-40) = 180$

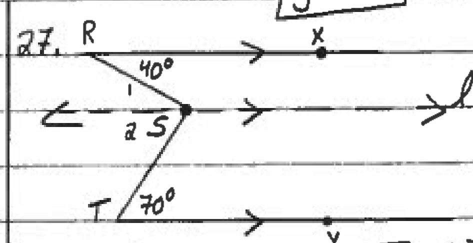
$\boxed{x = 90}$ $\boxed{y = 130}$

24. Given: $\overline{BE}$ bisects ∠DBA; $\angle 3 \cong \angle 1$



Prove: $\overline{CD} \parallel \overline{BE}$

Statements	Reasons
① $\overline{BE}$ bisects ∠DBA, $\angle 3 \cong \angle 1$	① Given
② $\angle 2 \cong \angle 3$	② Def. of ∠ bisector
③ $\angle 1 \cong \angle 2$	③ Trans. Prop. of ≅
④ $\overline{CD} \parallel \overline{BE}$	④ Alt. Int. ∠s Conv.

27. 

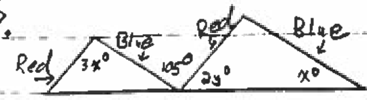
① Draw l through S and ∥ $\overrightarrow{RX}$ and $\overrightarrow{TY}$. [∥ Post.]
② $m\angle 1 = 40°$, $m\angle 2 = 70°$ [Alt. Int. ∠s Thm / Def. of ≅ ∠s]
③ $m\angle RST = m\angle 1 + m\angle 2$ [∠ Add Post]
④ $m\angle RST = 40 + 70$ [Subst. Prop. of = (2→3)]

$\boxed{m\angle RST = 110°}$

A #25 continued

Key

27 p. 87-88 WE #19-21, 25-26, 28-29, 31

19.


① For the red lines to be //, $3x = 105$. [Alt. Int. ∠s Conv.]

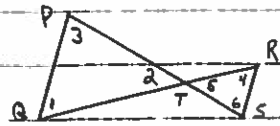
$\boxed{x = 35}$

② For the blue lines to be //, $x + (2y + 105) = 180$ [S.S. Int. ∠s Conv.]

[Subst $x = 35$] $35 + 2y + 105 = 180$

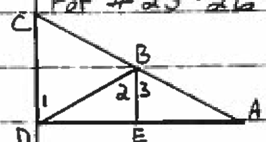
$2y = 40$

$\boxed{y = 20}$

For #20-21.


20. ① $\angle 1 \cong \angle 2$; $\angle 4 \cong \angle 5$ [Given]
② $\angle 2 \cong \angle 5$ [Vert. ∠s Thrm]
③ $\angle 1 \cong \angle 4$ [Trans. Prop. of ≅]
④ $\overline{PQ} \parallel \overline{RS}$ [Alt. Int. ∠s Conv.]

21. ① $\angle 3 \cong \angle 6$ [Given]
② $\overline{PQ} \parallel \overline{RS}$ [Alt. Int. ∠s Conv.]
③ $\angle 1 \cong \angle 4$ [Alt. Int. ∠s Thrm.]
④ $\angle 2 \cong \angle 5$ [Vert. ∠s Thrm]

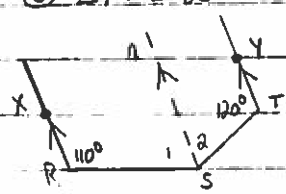
For #25-26


25. Given: $\overline{BE} \perp \overline{DA}$; $\overline{CD} \perp \overline{DA}$
Prove: $\angle 1 \cong \angle 2$

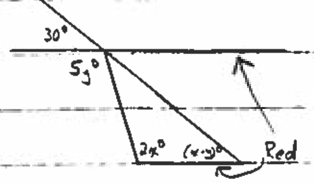
Statements	Reasons
① $\overline{BE} \perp \overline{DA}$; $\overline{CD} \perp \overline{DA}$	① Given
② $\overline{CD} \parallel \overline{BE}$	② In a plane, 2 line ⊥ to same line are //.
③ $\angle 1 \cong \angle 2$	③ Alt. Int. ∠s Thrm.

26. Given: $\angle C \cong \angle 3$; $\overline{BE} \perp \overline{DA}$
Prove: $\overline{CD} \perp \overline{DA}$

Statements	Reasons
① $\angle C \cong \angle 3$; $\overline{BE} \perp \overline{DA}$	① Given
② $\overline{CD} \parallel \overline{BE}$	② Corr. ∠s Conv.
③ $\overline{CD} \perp \overline{DA}$	③ ⊥ Trans. Thrm

28.


① Draw n through S and // to $\overleftrightarrow{XR}$ and $\overleftrightarrow{YT}$. [// Post.]
② $m\angle 1 = 70°$, $m\angle 2 = 60°$ [SS. Int. ∠s Thrm]
③ $m\angle RST = m\angle 1 + m\angle 2$ [∠ Add Post]
④ $\boxed{m\angle RST = 130°}$ [Subst. Prop. of = (2→3)]

29.


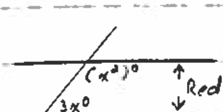
For the red lines to be parallel,

① $x - y = 30$ [Corr. ∠s Conv.] $\xrightarrow{x\,-2}$ $-2x + 2y = -60$
② $2x = 5y$ [Alt. Int. ∠s Conv.] $\longrightarrow$ $2x - 5y = 0$

$-3y = -60$

③ $x - 20 = 30$

$\boxed{x = 50}$ $\boxed{y = 20}$

31.


For the red lines to be //, $x^2 + 3x = 180$. [SS Int. ∠s Conv.]

$x^2 + 3x - 180 = 0$

$(x - 12)(x + 15) = 0$

$x = 12, -15$

$\boxed{x = 12}$

$x = 12$	$x = -15$
$x^2 = 144°$	$x^2 = 225°$ Not Possible > 180
$3x = 36°$ ✓	$3x = -45°$ ← No neg measures

X see explanation.