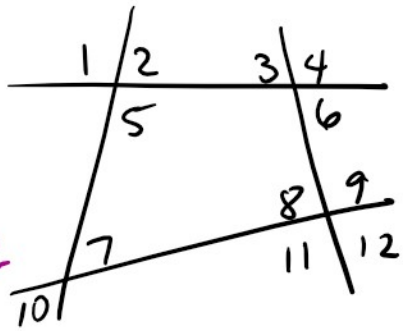
2.7 Solutions

Saturday, October 24, 2020 12:43 PM



1) ∠5 & ∠7 consecutive int ∠s (same side of transversal)

2) ∠10 & ∠11 corresponding ∠s (same position... lower left)

3) ∠6 & ∠8 alt int ∠s (alt. sides of transversal), interior

4) ∠9 & ∠10 alt ext ∠s (alt. sides of transversal) exterior

5) ∠11 & ∠7 alt int ∠s (alt. sides of transversal) interior

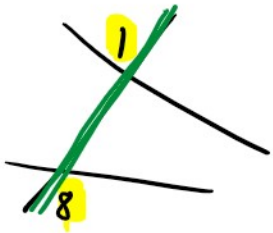
6) ∠5 & ∠6 corresp ∠s (same position ... lower right)

7) skew (on diff planes)

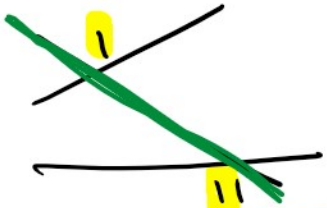
8) intersecting (have N in common)

9) // (same plane but don't intersect)

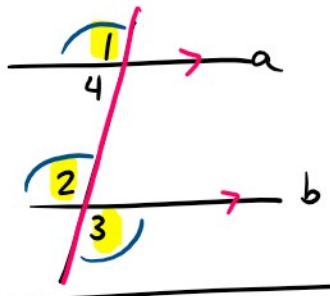
10) ∠1 alt ext with ∠8
- exterior
- alt sides of transversal



∠1 alt ext with ∠11
- exterior
- alt sides of transversal



11)



∠1 ≅ ∠2 (// → corresp ∠s ≅)
∠2 ≅ ∠3 (vert ∠s → ≅)
∠1 ≅ ∠3 (// → alt ext ∠s ≅)

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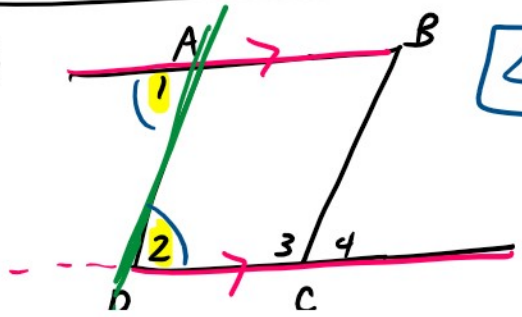
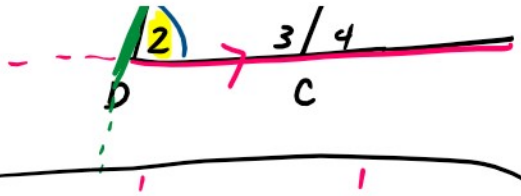
12)



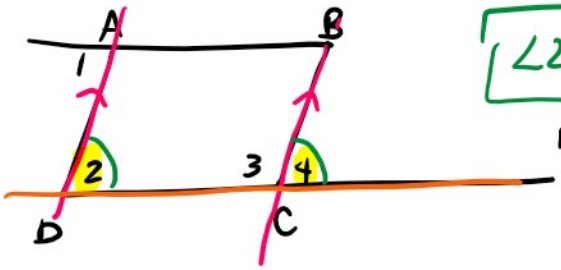
∠1 ≅ ∠2 (// → alt int ∠s ≅)

Note: although ∠2 + ∠4 are corresp ∠s, AD is not // to BC,



∠4 are corresp ∠s, AD is not // to BC, so cannot make a conclusion

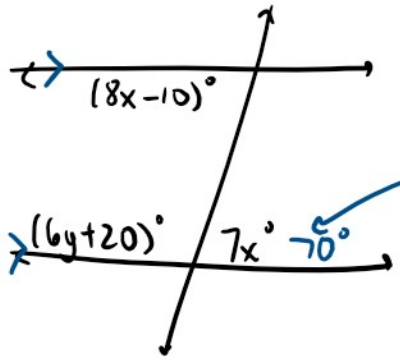
13)



$\angle 2 \cong 4$	// → corresp ∠s ≅

note: AB is not // DC, so no conclusion can be made for ∠1 + ∠2.

14)



// → alt int ∠s ≅

$8x - 10 = 7x$

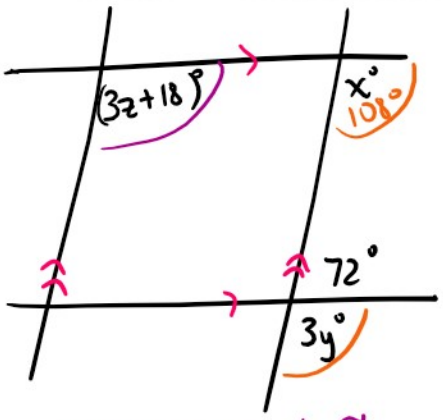
$\boxed{x = 10}$

$6y + 20 + 70 = 180$ (linear pair)

$6y = 90$

$\boxed{y = 15}$

15)



// → consect int ∠s supp

$x + 72 = 180$

$\boxed{x = 108}$

// → corresp ∠s ≅

$3y = 108$

$\boxed{y = 36}$

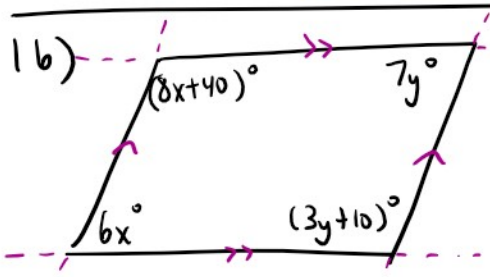
// → corresp ∠s ≅

$3z + 18 = 108$

$3z = 90$

$\boxed{z = 30}$

16)



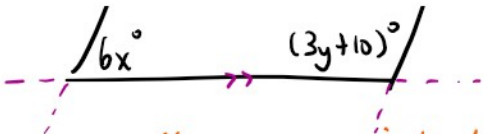
// → consec int ∠s supp

$6x + 8x + 40 = 180$

$14x + 40 = 180$

$14x = 140$

$\boxed{x = 10}$



$14x = 140$

$\boxed{x = 10}$

$\parallel \rightarrow$ consec. int $\angle$s supp

$7y + 3y + 10 = 180$

$10y = 170$

$\boxed{y = 17}$

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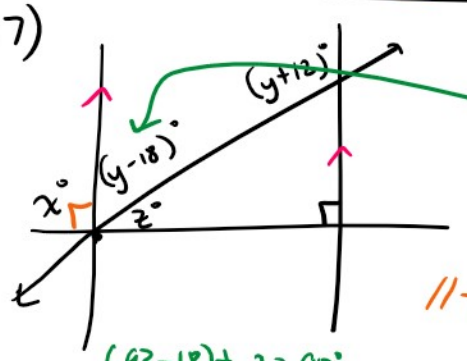
17)



$\parallel \rightarrow$ consec. int $\angle$s supp

$y - 18 + y + 12 = 180$

$2y - 6 = 180$

$2y = 186$

$\boxed{y = 93}$

$\parallel \rightarrow$ corresp $\angle$s $\cong$

$\boxed{x = 90}$

$(93 - 18) + z = 90°$

$75 + z = 90$

$\boxed{z = 15}$

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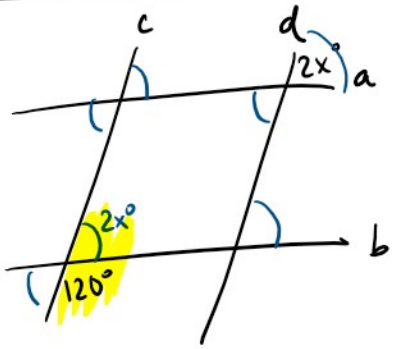
18)



vert $\angle$s $\Rightarrow \cong$

$\parallel \rightarrow$ corresp $\angle$s $\cong$

$120 + 2x = 180$ (linear pair)

$2x = 60$

$\boxed{x = 30}$

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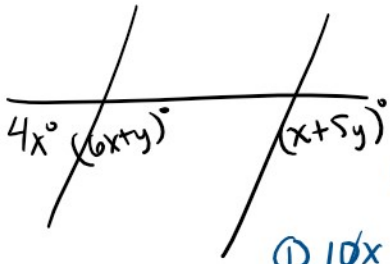
19)



linear pair $\rightarrow$ supp

$\parallel \rightarrow$ corresp $\angle$s $\cong$

① $4x + 6x + y = 180 \rightarrow 10x + y = 180$

② $6x + y = x + 5y \rightarrow \boxed{5x - 4y = 0}$ $\cdot -2$

① $10x + y = 180$

② $-10x + 8y = 0$

$9y = 180$

$\boxed{y = 20}$

$10x + 20 = 180$

$10x = 160$

$\boxed{x = 16}$

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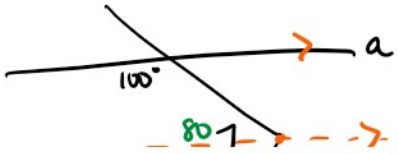
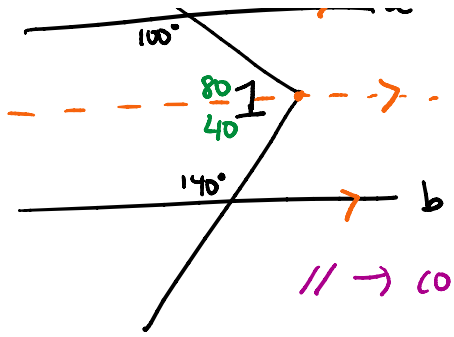
20)



$\angle 1 = 80 + 40$



$\angle 1 = 80 + 40$

$\boxed{\angle 1 = 120°}$

// → consec int ∠s supp

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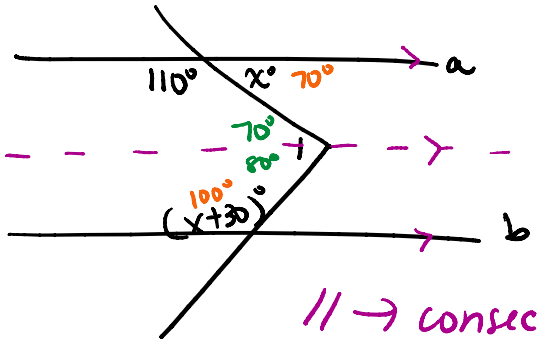
21)



$110 + x = 180$

$x = 70°$

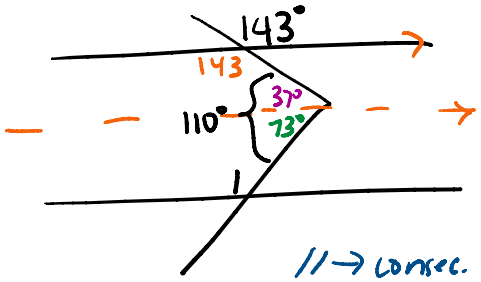
$\angle 1 = 70 + 80$

$= 150$

// → consec int ∠s supp

// → consec int ∠s supp

22)



$180 - 143 = 37°$

$110 - 37 = 73°$

// → consec. int ∠s supp

$\angle 1 = 180 - 73$

$\boxed{\angle 1 = 107°}$

Make sure you TRY all proofs on your own before you view the solutions below.

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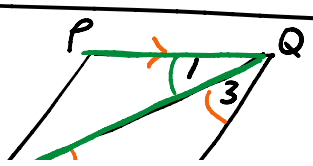
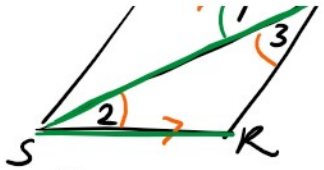
23) Given: $PQ \parallel RS$; $\angle 2 \cong \angle 3$

Prove: QS bis $\angle PQR$



Prove: QS bis ∠PQR



Statement	Reasons
1) PQ // RS; ∠2 ≅ ∠3	1) Given
2) ∠1 ≅ ∠2	2) // → alt int ∠s ≅
3) ∠1 ≅ ∠3	3) transitive
4) QS bis ∠PQR	4) ray ÷s ∠ into 2 ≅ ∠s → ∠ is bisected

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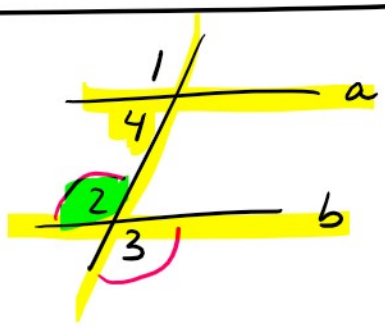
24) Given: a // b
Prove: ∠3 supp ∠4



Statement	Reasons
1) a // b	1) Given
2) ∠2 supp ∠4	2) // → consecut int ∠s supp
3) ∠2 ≅ ∠3	3) vert ∠s → ≅
4) ∠3 supp ∠4	4) substitution (3 into 2)

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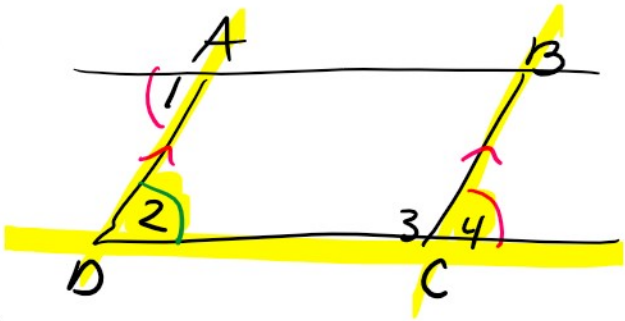
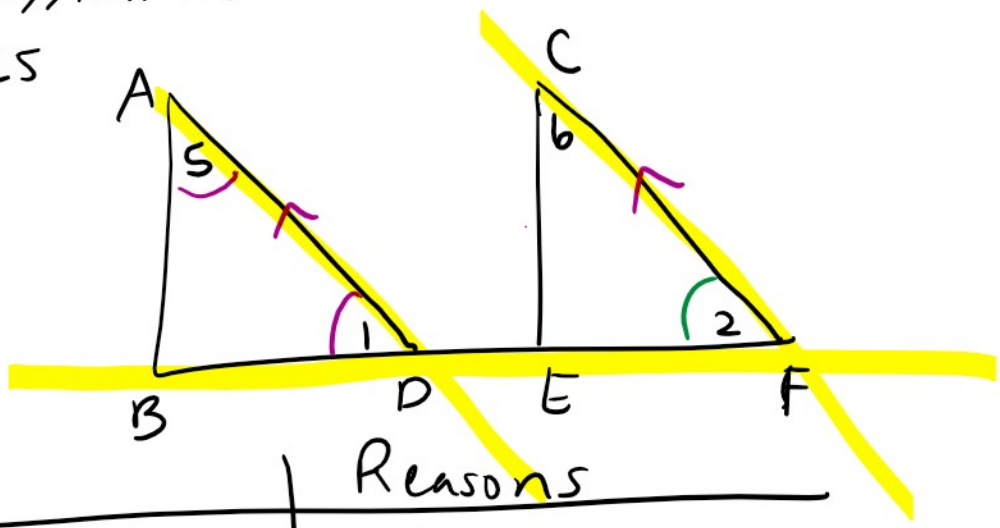
25) Given: AD // BC; ∠1 ≅ ∠4
Prove: ∠1 ≅ ∠2



Statement	Reason
1) AD // BC; ∠1 ≅ ∠4	1) Given
2) ∠2 ≅ ∠4	2) // → corresp ∠s ≅
3) ∠1 ≅ ∠2	3) transitive property

26) Given: $\angle 1 \cong \angle 5$, $AD \parallel CF$

Prove: $\angle 2 \cong \angle 5$



Statement	Reasons
1) $\angle 1 \cong \angle 5$; $AD \parallel CF$	1) Given
2) $\angle 1 \cong \angle 2$	2) $\parallel \rightarrow$ corresp $\angle$s $\cong$
3) $\angle 2 \cong \angle 5$	3) transitive