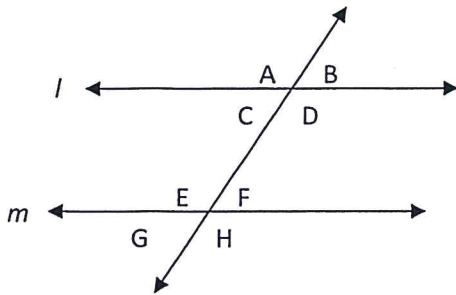


Parallel Lines With Algebra

Remember – drawings are not necessarily drawn accurately!

1 – 3: Find the value of x in each question given that lines l and m are parallel. Check your answers by finding the measure of each angle.

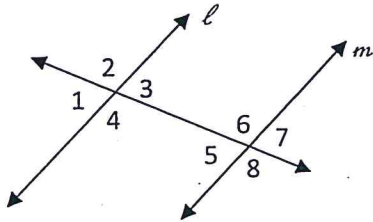


1) $m\angle C = 3x - 10$;
 $m\angle F = x + 70$

2) $m\angle D = x + 27$;
 $m\angle F = 2x - 39$

3) $m\angle B = 2(x + 40)$;
 $m\angle G = 5x + 44$

4 – 6: Find the value of x in each question given that lines l and m are parallel. Check your answers by finding the measure of each angle.



4) $m\angle 3 = 2x + 16$;
 $m\angle 5 = 7x - 4$

5) $m\angle 4 = 8x - 80$;
 $m\angle 5 = -2x + 116$

6) $m\angle 2 = 3x + 19$;
 $m\angle 6 = 2(x + 10)$

7) Given $l \parallel m \parallel n$ and $s \parallel t$, and $m\angle 1 = 143^\circ$, find

$m\angle 2 = \underline{\hspace{2cm}}$ $m\angle 11 = \underline{\hspace{2cm}}$ $m\angle 20 = \underline{\hspace{2cm}}$

$m\angle 3 = \underline{\hspace{2cm}}$ $m\angle 12 = \underline{\hspace{2cm}}$ $m\angle 21 = \underline{\hspace{2cm}}$

$m\angle 4 = \underline{\hspace{2cm}}$ $m\angle 13 = \underline{\hspace{2cm}}$ $m\angle 22 = \underline{\hspace{2cm}}$

$m\angle 5 = \underline{\hspace{2cm}}$ $m\angle 14 = \underline{\hspace{2cm}}$ $m\angle 23 = \underline{\hspace{2cm}}$

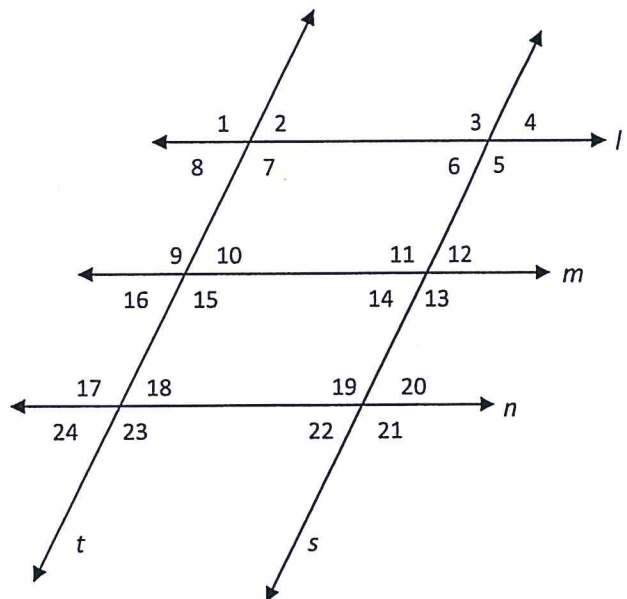
$m\angle 6 = \underline{\hspace{2cm}}$ $m\angle 15 = \underline{\hspace{2cm}}$ $m\angle 24 = \underline{\hspace{2cm}}$

$m\angle 7 = \underline{\hspace{2cm}}$ $m\angle 16 = \underline{\hspace{2cm}}$

$m\angle 8 = \underline{\hspace{2cm}}$ $m\angle 17 = \underline{\hspace{2cm}}$

$m\angle 9 = \underline{\hspace{2cm}}$ $m\angle 18 = \underline{\hspace{2cm}}$

$m\angle 10 = \underline{\hspace{2cm}}$ $m\angle 19 = \underline{\hspace{2cm}}$



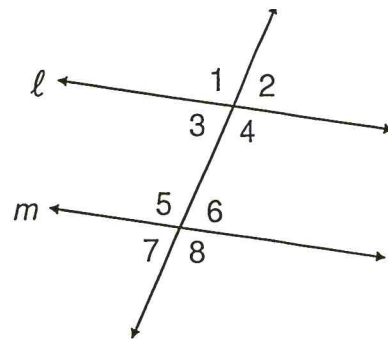
In problems 2 – 6, write complete proofs.

2. Prove the Alternate Exterior Angles Theorem:

If 2 parallel lines are cut by a transversal, then the alternate exterior angles are congruent.

Given: $\ell \parallel m$

Prove: $\angle 2 \cong \angle 7$



Conclusions

Justifications

Lesson 2.6: Parallel Lines Proofs Worksheet

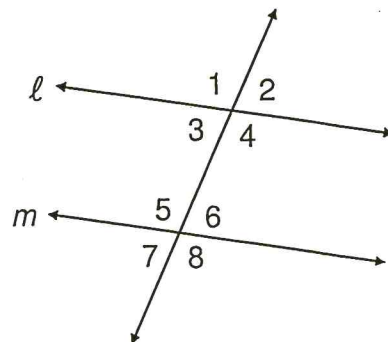
page 2

3. Prove the Same Side Exterior Angles Theorem:

If 2 parallel lines are cut by a transversal, then the same side exterior angles are supplementary.

Given: $\ell \parallel m$

Prove: $\angle 1$ and $\angle 7$ are supplementary



Conclusions

Justifications