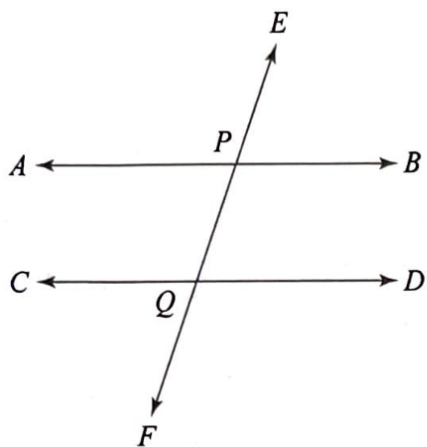
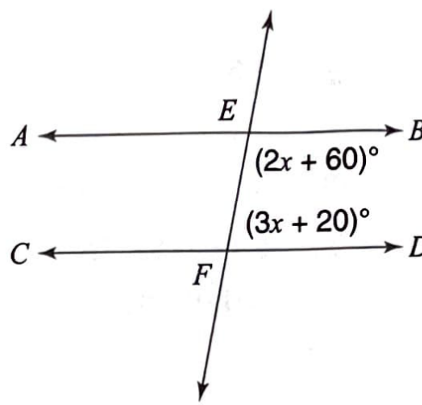


Geometry #11: Angles Formed by Parallel Lines
Booklet

2. In the accompanying diagram, parallel lines \overline{AB} and \overline{CD} are cut by transversal \overline{EF} at P and Q , respectively. Which statement must *always* be true?
- (1) $m\angle APE = m\angle CQF$
 - (2) $m\angle APE + m\angle CQF = 90$
 - (3) $m\angle APE < m\angle CQF$
 - (4) $m\angle APE + m\angle CQF = 180$



Exercise 2

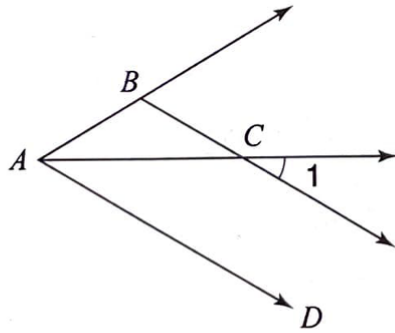


Exercise 3

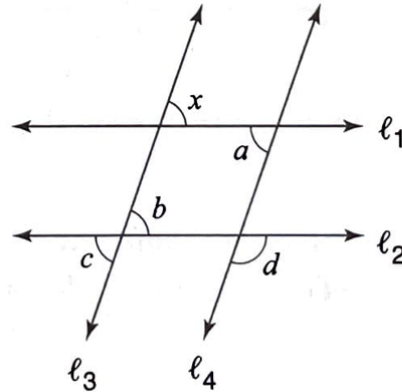
3. In the accompanying diagram, parallel lines \overline{AB} and \overline{CD} are cut by transversal \overline{EF} . If $m\angle BEF = 2x + 60$ and $m\angle EFD = 3x + 20$, what is $m\angle BEF$?
- (1) 100
 - (2) 20
 - (3) 140
 - (4) 40

4. In the accompanying diagram, $\overline{AD} \parallel \overline{BC}$ and \overline{AC} bisects $\angle BAD$. If $m\angle ABC = x$, what is the measure of $\angle 1$ in terms of x ?

- (1) $90 - x$ (2) $\frac{90 - x}{2}$ (3) $90 - \frac{x}{2}$ (4) $\frac{90 + x}{2}$

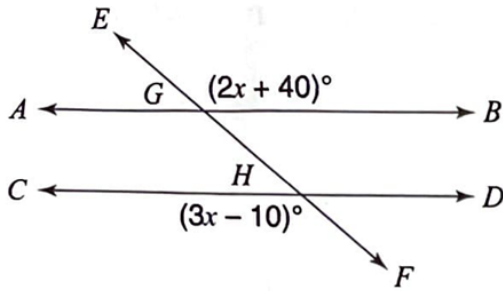


Exercise 4

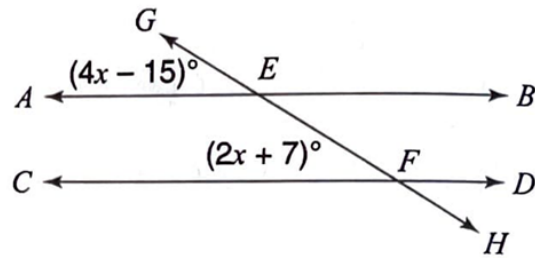


Exercise 5

5. If, in the accompanying diagram, $l_1 \parallel l_2$ and $l_3 \parallel l_4$, then $\angle x$ is *not* always congruent to which angle?
- (1) a (2) b (3) c (4) d

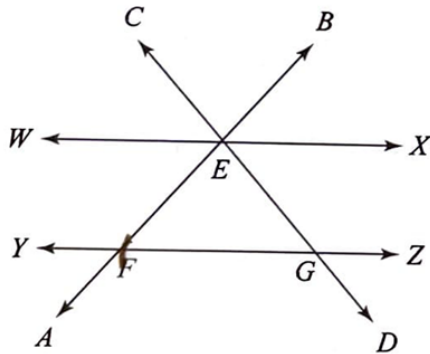


Exercise 6

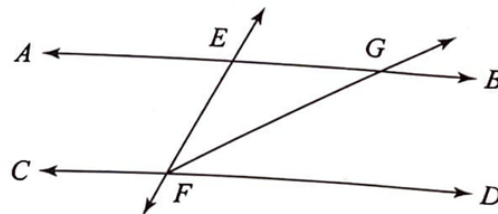


Exercise 7

6. In the accompanying diagram, transversal \overline{EF} intersects parallel lines \overline{AB} and \overline{CD} at G and H , respectively. If $m\angle EGB = 2x + 40$ and $m\angle FHC = 3x - 10$, what is the measure of $\angle DHE$?
7. In the accompanying diagram, $\overline{AB} \parallel \overline{CD}$, $m\angle AEG = 4x - 15$, and $m\angle CFE = 2x + 7$. What is the measure of $\angle BEF$?
8. In the accompanying diagram, $\overline{WX} \parallel \overline{YZ}$; \overline{AB} and \overline{CD} intersect \overline{WX} at E and \overline{YZ} at F and G , respectively. If $m\angle CEW = m\angle BEX = 50$, find $m\angle EGF$.



Exercise 8



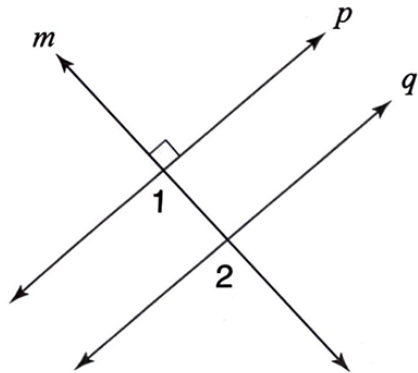
Exercise 9

9. In the accompanying diagram, $\overline{AB} \parallel \overline{CD}$ and \overline{FG} bisects $\angle EFD$. If $m\angle EFG = x$ and $m\angle FEG = 4x$, find $m\angle EGF$.

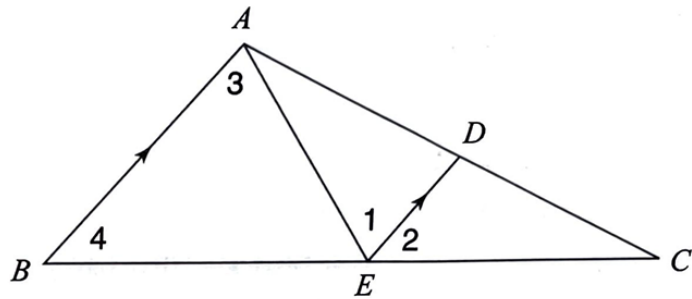
C. Write a proof.

10. a. Given: $p \parallel q$, $m \perp p$.
Prove: $m \perp q$.

b. Express the result of what you proved in part a as a theorem.



Exercise 10



Exercise 11

11. Given: $\overline{AB} \parallel \overline{DE}$, \overline{DE} bisects $\angle AEC$.
Prove: $\angle 3 \cong \angle 4$.