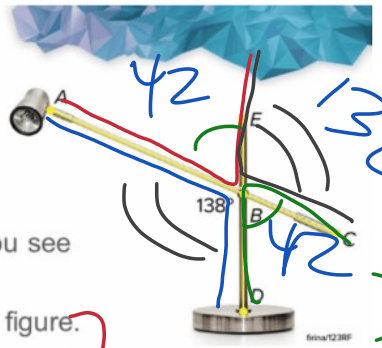
Example 3
Vertical Angles and Angle Pairs

HOME DECOR The office lamp is made using two intersecting metal bars.



a. How many pairs of adjacent angles do you see in the figure? List two pairs.

b. Identify two pairs of vertical angles in the figure.

c. How many linear pairs do you see in the figure? List each pair.

d. Find $m\angle EBC$.

e. Find $m\angle ABE$.

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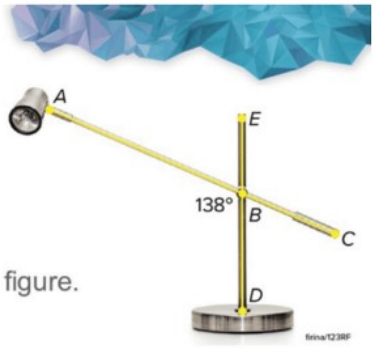
∠ABD and ∠CBD

∠EBC and ∠ABE

∠DBA and ∠EBA

∠CBE and ∠DBL

Example 3
Vertical Angles and Angle Pairs



a. How many pairs of adjacent angles do you see in the figure? List two pairs.

4; $\angle DBA$ and $\angle ABE$, $\angle ABE$ and $\angle EBC$

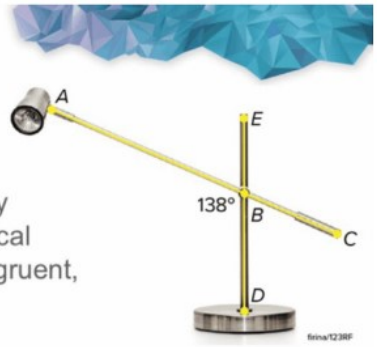
b. Identify two pairs of vertical angles in the figure.

$\angle DBA$ and $\angle EBC$, $\angle ABE$ and $\angle CBD$

c. How many linear pairs do you see in the figure? List each pair.

4; $\angle DBA$ and $\angle ABE$, $\angle ABE$ and $\angle EBC$, $\angle EBC$ and $\angle CBD$, $\angle CBD$ and $\angle DBA$

Example 3
Vertical Angles and Angle Pairs



d. Find $m\angle EBC$.

Because $\angle ABD$ and $\angle EBC$ are formed by intersecting line segments, they are vertical angles. Because vertical angles are congruent, $m\angle EBC$ is the same as $m\angle ABD$, 138°.

e. Find $m\angle ABE$.

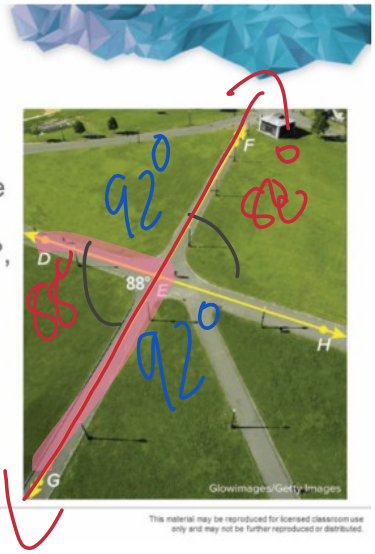
Because $\angle ABE$ and $\angle ABD$ form a linear pair, their measures add to 180°. Thus, $m\angle ABE = 180° - m\angle ABD = 180° - 138° = 42°$.

Example 3
Vertical Angles and Angle Pairs

Check

PARK A city planner is designing a park. He wants to place two pathways that intersect near the center of the park. If $m\angle GED = 88°$, identify the true statement(s).

A. $m\angle DEF = 92°$
B. $m\angle DEG = 92°$
C. $m\angle FEH = 88°$
D. $m\angle DEH = 92°$
E. $m\angle GEH = 88°$



180 - 88 = 92

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Check

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A. $m\angle DEF = 92°$

B. $m\angle DEG = 92°$

C. $m\angle FEH = 88°$

D. $m\angle DEH = 92°$

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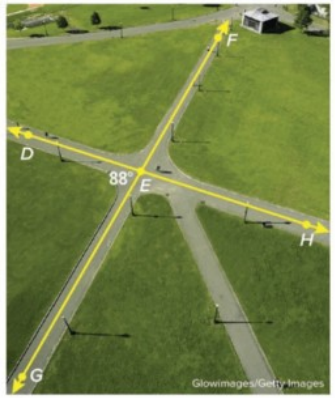
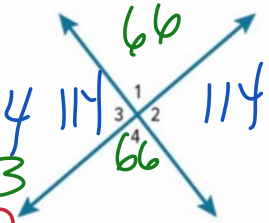


Exit Ticket

Use the figure.

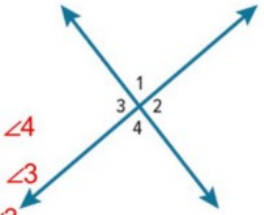


1. ∠1 and what other angle(s) are vertical angles? 4
2. ∠2 and what other angle(s) are vertical angles? 3
3. ∠4 is adjacent to what other angle(s)? 3 & 2
4. ∠1 and what other angle(s) form a linear pair? 3 & 2
5. If $m\angle 2 = 114°$, then what are $m\angle 1$, $m\angle 3$, and $m\angle 4$?

66 114 66

Exit Ticket

Use the figure.



1. ∠1 and what other angle(s) are vertical angles? ∠4
2. ∠2 and what other angle(s) are vertical angles? ∠3
3. ∠4 is adjacent to what other angle(s)? ∠2 and ∠3
4. ∠1 and what other angle(s) form a linear pair? ∠2 and ∠3
5. If $m\angle 2 = 114°$, then what are $m\angle 1$, $m\angle 3$, and $m\angle 4$?

   $m\angle 1 = 66°$, $m\angle 3 = 114°$, $m\angle 4 = 66°$