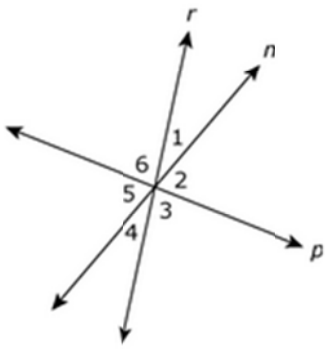
Unit 2 Review

1. The figure shows lines r, n, and p intersecting to form angles numbered 1, 2, 3, 4, 5, and 6. All three lines lie in the same plane.



not to scale

Based on the figure, which of the individual statements would provide enough information to conclude that line r is perpendicular to line p?

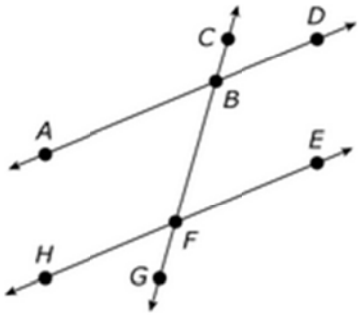
Select **all** that apply.

- ☐ A. $m\angle 2 = 90^\circ$
- ☐ B. $m\angle 6 = 90^\circ$
- ☐ C. $m\angle 3 = m\angle 6$
- ☐ D. $m\angle 1 + m\angle 6 = 90^\circ$
- ☐ E. $m\angle 3 + m\angle 4 = 90^\circ$
- ☐ F. $m\angle 4 + m\angle 5 = 90^\circ$

2. Use the picture on the right for the following two proofs.

Given: $\angle CBD \cong \angle BFE$, Prove: $\angle ABG \cong \angle HFG$

In the figure shown, $\overleftrightarrow{CF}$ intersects $\overleftrightarrow{AD}$ and $\overleftrightarrow{EH}$ at points B and F, respectively.



Given: $\angle CBD \cong \angle BFE$, Prove: $m\angle BFE + m\angle DBF = 180^\circ$

3. Given $m\angle BGD = m\angle HGF = m\angle CGB = 90^\circ$

Choose the symbol to make each statement true.

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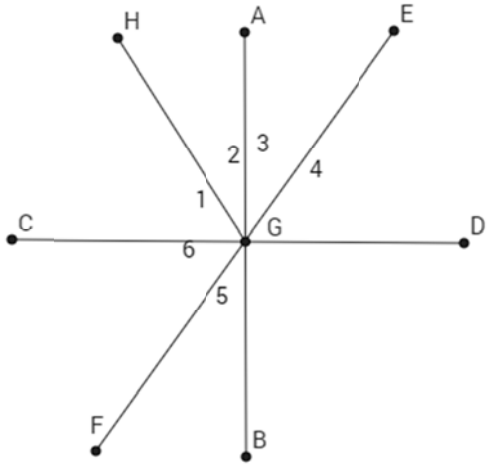
$\angle 3 \_\_\_ \angle 6$

$m\angle 4 \_\_\_ m\angle 7$

$m\angle BGD \_\_\_ m\angle CGF$

$m\angle CGF + m\angle FGD \_\_\_ 180^\circ$



4. Order the length of each segment from shortest to longest given the two endpoints.

A(-6,1)B(-1,6) C(-5, 8)D(5, 8) E(2,7)F(4, -2) G(7, 3)H(7, -1) J(-4, -2)K(1, -5)

5. Make a conjecture about the following properties, then prove it. What type of reasoning are you using in each part of that process?

a) The sum of two even integers.

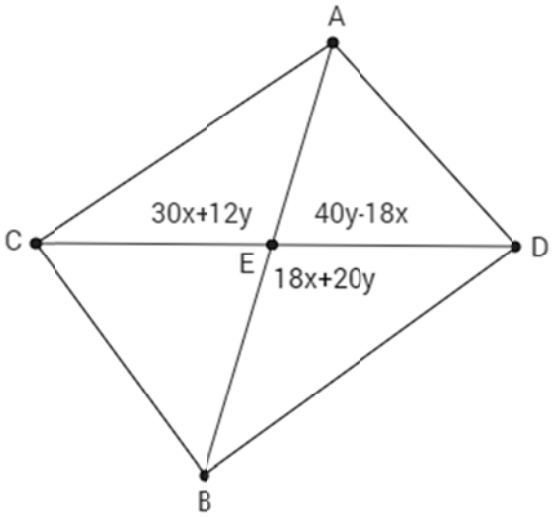
b) The sum of two odd integers.

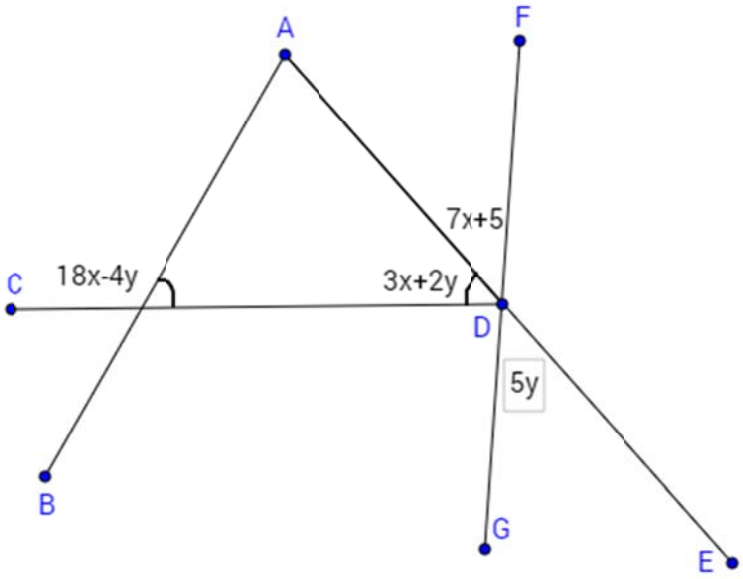
c) The product of two odd integers

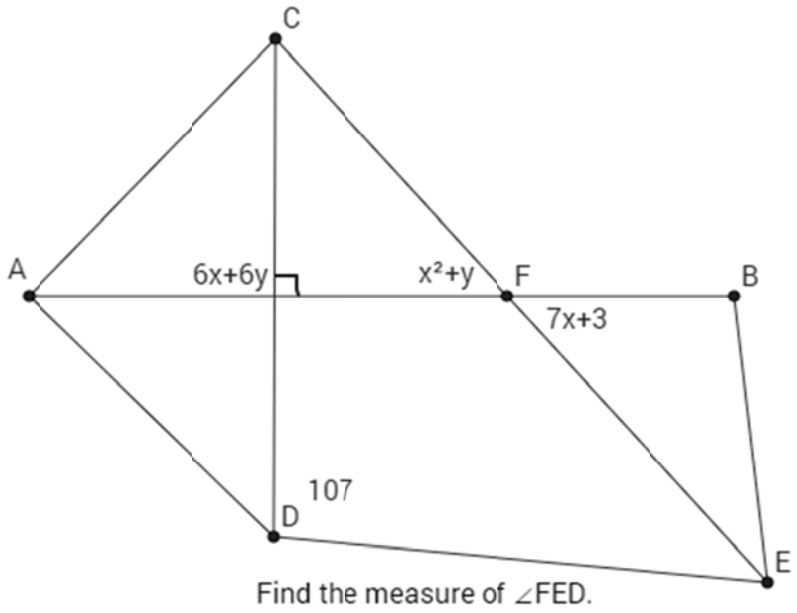
d) The product of three odd integers

Hint: For any integer n, 2n is an even integer and 2n+1 is an odd integer.

6. Find the missing angle measures.







7. For each statement, write the if-then form, the converse, inverse and contrapostive. Then say if each statement is true or false. If false, provide a counter example.

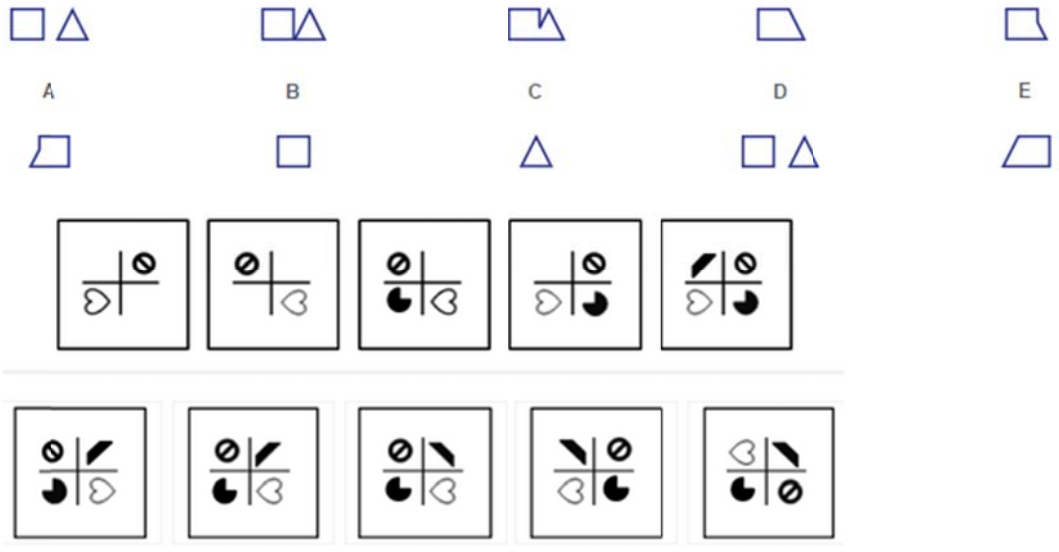
The sky is blue.
A pentagon is a polygon with 5 sides.

8. Write a biconditional statement for:

Acute angles
Triangles

9. Know the difference between inductive and deductive reasoning. Be able to give an example of each.

10. Use inductive reasoning to predict the next term in the pattern.



11. Form a deductive argument. An example of one is below:
All even numbers are divisible by 2.
8 is an even number.
Therefore, 8 is divisible by 2.

12. Solve for x by writing algebraic proofs.

$\frac{5}{3}(4x-11) = \frac{21}{4}x - \frac{11}{4}$

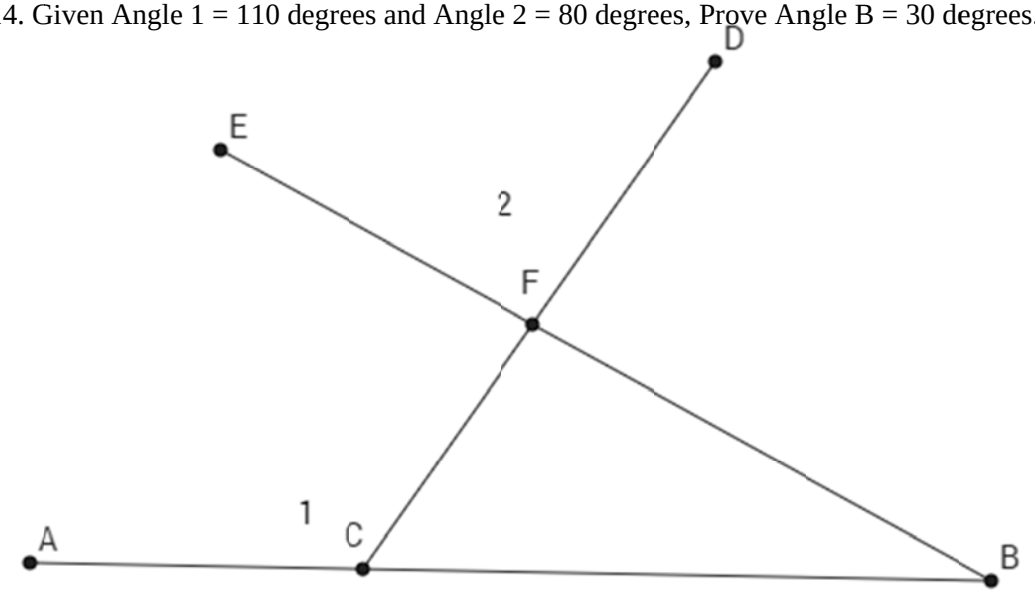
$4(36x - 2) + 8 = (4x+3)^2$

$\frac{x+3}{40} = \frac{7}{4x}$

13. Find the point (x,y) where the two lines intersect.

y = -3x + 9 12x + 3y = 18
y = 5x + 33 4x – 5y = - 102

14. Given Angle 1 = 110 degrees and Angle 2 = 80 degrees, Prove Angle B = 30 degrees.



15. Prove the radius of a circle is equal to the square root of the area divided by pi.