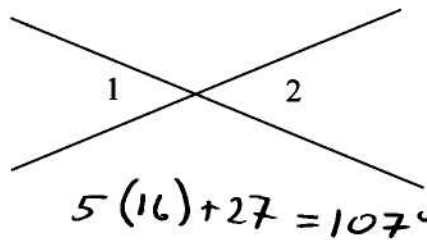


1. Identify the conclusion of the statement "If today is <sup>hyp</sup> Tuesday, then <sup>conc</sup> tomorrow is Wednesday."

- a. Today is not Tuesday
- b. Today is Wednesday
- c. Today is Tuesday
- d. Tomorrow is Wednesday

2. Refer to the figure at the right. If  $m\angle 1 = 7x - 5$  and  $m\angle 2 = 5x + 27$ , what is the measure of  $\angle 2$ ?

a. ~~16°~~       $7x - 5 = 5x + 27$   
 b. 32°       $2x = 32$   
 c. 107°       $\rightarrow x = 16^\circ$   
 d. 73°



3.  $\angle P$  and  $\angle Q$  form a linear pair and  $m\angle P = 163$ . Find  $m\angle Q$ . Draw and Label a figure, then answer the question



- a. 73°
- b. 17°
- c. 107°
- d. 90°

Choose the law that justifies each statement in problems 4-10.

4. If  $\overline{AB} \cong \overline{XY}$  and  $\overline{XY} \cong \overline{QS}$ , then  $\overline{AB} \cong \overline{QS}$ .

- a. addition
- b. transitive
- c. reflexive
- d. none

5. If  $m\angle A = m\angle B$ , then  $m\angle B = m\angle A$

- a. symmetric
- b. transitive
- c. reflexive
- d. none

6. If  $XY - YZ = XM$ , then  $XY = XM + YZ$

- $+YZ \quad +YZ \quad \rightarrow$
- a. addition
  - b. substitution
  - c. multiplication
  - d. none

7. If  $m\angle A + m\angle B = 90^\circ$ , and  $m\angle A = 30^\circ$ , then  $30^\circ + m\angle B = 90^\circ$ .

- a. addition
- b. substitution
- c. multiplication
- d. none

8.  $\overline{PS} \cong \overline{PS}$

- a. symmetric
- c. reflexive

- b. transitive
- d. none

9. If  $2MN = TS$ , then  $MN = \frac{1}{2} TS$

- a. addition
- c. substitution

- b. subtraction
- d. division

10. If B is the midpoint of  $\overline{AC}$ , then  $AB = BC$

- a. symmetry of congruent segments
- c. transitive

- b. definition of midpoint
- d. reflexive

11. If  $p \rightarrow q$  and  $q \rightarrow r$  are both true conditional statements, then  $p \rightarrow r$  is true, is an example of:

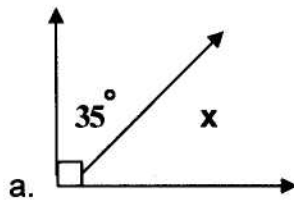
a. Reflexive Property of Equality

b. Symmetric Property of Congruence

c. Law of Syllogism

d. Law of Detachment

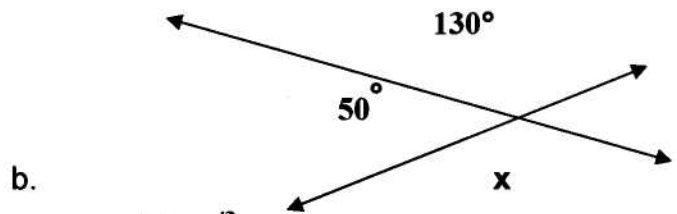
12. Find the measure of x. State the angle measure and justify your answer.



$$\begin{aligned} x + 35^\circ &= 90 \\ x &= 55^\circ \end{aligned}$$

x = 55°

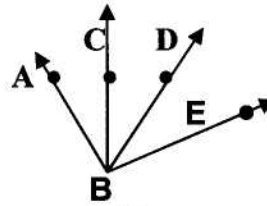
Reason Def of right angle or complementary angles



x = 130°

Reason vertical angles or Linear pair

Hint: Big to Small.....Label the diagram



13. Given:  $m\angle ABD = m\angle CBE$   
 Prove:  $m\angle ABC = m\angle DBE$

Statements	Reasons
1. $m\angle ABD = m\angle CBE$	1. Given
2. $m\angle ABC + m\angle CBD = m\angle ABD$	2. Angle Addition
3. $m\angle CBD + m\angle DBE = m\angle CBE$	3. Angle Addition
4. $m\angle ABC + m\angle CBD = m\angle CBD + m\angle DBE$	4. Substitution Property of Equality
5. $m\angle ABC = m\angle DBE$	5. Subtraction prop. of Equality

14. Match each type of statement with the correct symbols if P is the original hypothesis.

D Conditional

a.)  $\sim p \rightarrow \sim q$

B Converse

b.)  $q \rightarrow p$

A Inverse

c.)  $\sim q \rightarrow \sim p$

C Contrapositive

d.)  $p \rightarrow q$

15. Find  $x$  and  $m\angle ABC$

$$4x + 16 + 2x + 2 = 90$$

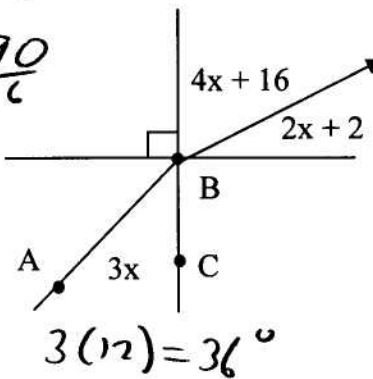
$$\frac{6x}{6} + \frac{18}{6} = \frac{90}{6}$$

$$x + 3 = 15$$

$$x = 12$$

$$x = \underline{12}$$

$$m\angle ABC = \underline{36^\circ}$$



16. For the conditional statement below, state the hypothesis, conclusion, converse, inverse, and contrapositive.

**If two lines intersect, then they form congruent vertical angles.**

Hypothesis: two lines intersect

Conclusion: they form congruent vertical angles

Converse: If two lines form congruent vertical angles, then they intersect.

Inverse: If two lines don't intersect then they don't form congruent vertical angles

Contrapositive: If two lines don't form  $\cong$  vert. angles, then they don't intersect

In problem 17 below, write the converse of the statement in if-then form. Is the converse true or false? If false, give a counter example. A true statement has no counter example.

17. If  $\angle 1 \cong \angle 2$ , then  $\angle 1$  and  $\angle 2$  are vertical angles.

If  $\angle 1$  and  $\angle 2$  are vertical angles, then  $\angle 1 \cong \angle 2$

True or False? Counterexample: \_\_\_\_\_

L