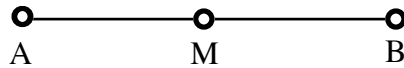


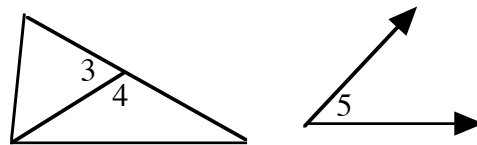
12.4.7 By the end of the twelfth grade, students will apply deductive reasoning to arrive at a conclusion.

- 1: Give the converse of “If today is Tuesday, then tomorrow is Wednesday.”
- If tomorrow is Wednesday, then today is Tuesday.
 - If today is not Tuesday, then tomorrow is not Wednesday.
 - If tomorrow is not Wednesday, then today is Tuesday.
 - If today is Tuesday, then tomorrow is not Wednesday.
- 2: Write “a number divisible by 6 is divisible by 3” as an if-then statement
- If a number is divisible by 3 then it is divisible by 6.
 - If a number is divisible by 6 then it is divisible by 3.
 - If a number is divisible by 3 then it is not divisible by 6.
 - If a number is not divisible by 6 then it is divisible by 3.
- 3: Which property of algebra justifies the following statement:
If $RS = TW$ and $TW = AB$, then $RS = AB$
- Commutative Property
 - Associative Property
 - Symmetric Property
 - Transitive Property
- 4: Which property of algebra justifies the following statement: If $2x - 5 = -3$ then $2x = 2$
- Addition Property
 - Subtraction Property
 - Multiplication Property
 - Substitution Property
- 5: Give the reason that justifies the statement: If $AM = MB$ then $AM + MB = AB$
- Definition of midpoint
 - Midpoint Theorem
 - Addition Property
 - Segment Addition Property



- 6: Given $\angle 5$ is supplementary to $\angle 4$. What can you conclude about $\angle 5$ and $\angle 3$?

- They are complementary
- They are supplementary
- They are congruent
- They are adjacent



7: Provide a counterexample to disprove the statement: If $x^2 \geq 9$, then $x \geq 3$

- A. $x = 2$
- B. $x = -3$
- C. $x = 3.5$
- D. $x = 4$

8: What would be the first statement in an indirect proof of this problem:

Given: $\triangle XYZ$ and $\angle X = 100^\circ$

Prove: $\angle Y$ is not a right angle

- A. Assume $\triangle XYZ$ and $\angle X \neq 100^\circ$
- B. Assume $\angle Y$ is not a right angle
- C. Assume $\angle Y$ is a right angle
- D. Assume $\triangle XYZ$ and $\angle X = 100^\circ$

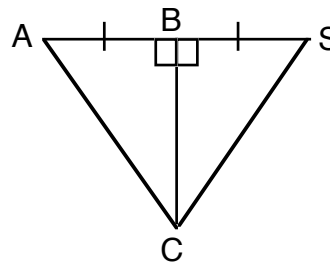
9: Find the value of x by arranging the following statements in the correct order.

- (a) $5x = 2x + y$ and $y = 12$
- (b) $x = 4$
- (c) $5x = 2x + 12$
- (d) $3x = 12$

- A. c, a, b, d
- B. c, a, d, b
- C. a, c, d, b
- D. a, c, b, d

10: Using the given figure, what postulate would you use to show $\triangle ABC \cong \triangle SBC$?

- A. SAS
- B. ASA
- C. SSS
- D. AAS



Answers for 12.4.7:

1. A : If tomorrow is Wednesday, then today is Tuesday.
2. B : If a number is divisible by 6, then it is divisible by 3.
3. D : Transitive Property
4. A : Addition Property
5. D : Segment Addition Property
6. C : They are congruent
7. B : $x = -3$
8. C : $\angle Y$ is a right angle
9. C : a , c , d , b
10. A : SAS