

LEVEL: EMERGING

Directions: For numbers 1 through 6, determine what property was used in the following examples.

| | | |
|--------------------------------------------------|------------------------------------------------|------------------------------------|
| 1) If $ST = YZ$ and $YZ = PR$, then $ST = PR$. | 2) $BC + 3 - 3 = BC$ | 3) If $a = 11$, then $11 = a$. |
| 4) If $x = 10$, then $3x = 30$. | 5) If AB is a line segment, then $AB = AB$. | 6) If $ST = HG$, then $HG = ST$. |

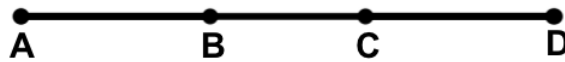
LEVEL: PROFICIENT

Directions: Identify if inductive or deductive reasoning is being used in the following situations.

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 7) Angela knows that Walt is taller than Peter. She also knows that Peter is taller than Natalie. Angela reasons that Walt is taller than Natalie. | A) Inductive Reasoning B) Deductive Reasoning |
| 8) Josh knows that Brand X computers cost less than Brand Y computers. All other brands that Josh knows cost less than Brand X. He concludes that Brand Y costs more than the other brands. | A) Inductive Reasoning B) Deductive Reasoning |
| 9) If you live in Nevada and are between 16 and 18, then you must take drivers education to get your license. Anthony lives in Nevada and is 16 years old and has his drivers license. Therefore he took drivers education. | A) Inductive Reasoning B) Deductive Reasoning |
| 10) For the past three Wednesdays, the cafeteria has served Mac and Cheese for lunch. Dana concludes that the cafeteria will serve Mac and Cheese this Wednesday | A) Inductive Reasoning B) Deductive Reasoning |

Directions: Complete the proof.

- 11) Given: $AC = BD$
 Prove: $AB = CD$



| Statements | Reason |
|------------|--------|
| | |
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| | |

- 12) Given: R, J, and M are collinear. $RJ = 3$, and $RM = 8$.
 Prove: $JM = 5$



| Statements | Reason |
|------------|--------|
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| | |
| | |

LEVEL: MASTERY

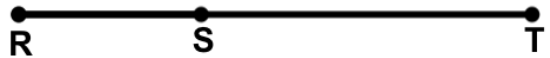
Directions: Complete the proof by placing the reasons in the correct order. (Circle A B C D E in each step). Each option is only used **once**.

- 13) Given: $5(x + 3) = 5 - 9$
 Prove: $x = \frac{-19}{5}$

| Statements | | Reasons |
|------------|-------------------------|--------------------------------------|
| (1) | $5(x + 3) = 5 - 9$ | (1) Given |
| (2) | Question a A B C D | (2) Distributive Property |
| (3) | Question b A B C D | (3) Combine like terms |
| (4) | Question c A B C D | (4) Subtraction Property of Equality |
| (5) | Question d A B C D | (5) Division Property of Equality |

- A) $x = -\frac{19}{5}$ B) $5x + 15 = -4$ C) $5x + 15 = 5 - 9$ D) $5x = -19$

- 14) Given: $RS = 2x$, $RT = 9x - 2$, and $x = 4$
 Prove: $ST = 26$



| Statements | | Reasons |
|------------|---------------------------------|---------------------------------------|
| (1) | Question a A B C D E F G H | (1) Given |
| (2) | Question b A B C D E F G H | (2) Segment Addition Postulate |
| (3) | Question c A B C D E F G H | (3) Substitution Property of Equality |
| (4) | Question d A B C D E F G H | (4) Subtraction Property of Equality |
| (5) | Question e A B C D E F G H | (5) Substitution Property of Equality |
| (6) | Question f A B C D E F G H | (6) Simplify |

- A) $RS = 2x$ B) $RT = 9x - 2$ C) $x = 4$ D) $2x + ST = 9x - 2$ E) $ST = 26$ F) $ST = 7(4) - 2$
 G) $ST = 7x - 2$ H) $RS + ST = RT$

- 15) Given: $XY = 42$, $XZ = 3(n + 4)$, and $ZY = 3n$
 Prove: $n = 5$



| Statements | | Reasons |
|------------|-------------------------------------------|--------------------------------------|
| (1) | $XY = 42$, $XZ = 3(n+4)$, and $ZY = 3n$ | (1) Given |
| (2) | Question a A B C D E F | (2) Segment Addition Postulate |
| (3) | Question b A B C D E F | (3) Substitution Property |
| (4) | Question c A B C D E F | (4) Distributive Property |
| (5) | Question d A B C D E F | (5) Combine like terms |
| (6) | Question e A B C D E F | (6) Subtraction Property of Equality |
| (7) | Question f A B C D E F | (7) Division Property of Equality |

- A) $3(x + 4) + 3n = 42$ B) $XZ + YZ = XY$ C) $n = 5$ D) $6n + 12 = 42$
 E) $3n + 12 + 3n = 42$ F) $6n = 30$

Directions: Complete the two-column proof.

- 16) Given: $-16 + 5n = 7(6 - 8n) + 3$
Prove: $n = 1$

| Statements | Reason |
|------------|--------|
| (1) | |
| (2) | |
| (3) | |
| (4) | |
| (5) | |
| (6) | |

- 17) Given: $XY = 3x + 1$, $YZ = 58 - 3x$, $XZ = x^2 + 10$
Prove: $x = 7$



| Statements | Reason |
|------------|--------|
| (1) | |
| (2) | |
| (3) | |
| (4) | |
| (5) | |
| (6) | |