

PROPERTIES FROM ALGEBRA

NAME _____ PERIOD _____



Match the statement with the Property of Equality.

- _____ 1. If $JK = PQ$ and $PQ = ST$, then $JK = ST$.
- _____ 2. If $m\angle S = 30^\circ$, then $5^\circ + m\angle S = 35^\circ$.
- _____ 3. If $AB + CD = EF + CD$, then $AB = EF$.
- _____ 4. $AB = AB$
- _____ 5. If $x = 4$ and $y = x + 5$, then $y = 9$.
- _____ 6. If $m\angle K = 45^\circ$, then $3(m\angle K) = 135^\circ$.
- _____ 7. If $m\angle P = m\angle Q$, then $m\angle Q = m\angle P$.

- A. Addition property
- B. Reflexive property
- C. Substitution property
- D. Transitive property
- E. Symmetric property
- F. Multiplication property
- G. Subtraction property

Use the property to complete the statement.

8. Addition property of equality: If $AB = 5$, then $10 + AB =$ _____.
9. Multiplication property of equality: If $m\angle C = 30^\circ$, then $2(m\angle C) =$ _____.
10. Reflexive property of equality: $AF =$ _____.
11. Symmetric property of equality: If $m\angle DCF = m\angle MJC$, then _____.
12. Transitive property of equality: If $YZ = DB$ and _____ = JK , then _____.
13. Substitution property of equality: If $MN = 3$, then $5(MN) =$ _____.

Complete the argument, giving a reason for each step.

14. $\frac{x}{3} + 4 = 16$ GIVEN

$\frac{x}{3} = 12$ _____

$x = 36$ _____

15. $8x - 5 = -2x - 15$ GIVEN

$10x - 5 = -15$ _____

$10x = -10$ _____

$x = -1$ _____

16. $-6(x + 2) = -36$ GIVEN

$-6x - 12 = -36$ _____

$-6x = -24$ _____

$x = 4$ _____

17. $-2(3x - 4) = 3x + 12$ GIVEN

$-6x + 8 = 3x + 12$ _____

$-9x + 8 = 12$ _____

$-9x = 4$ _____

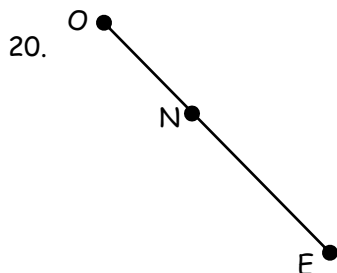
$x = -4/9$ _____

Solve the following and write the reason for each step.

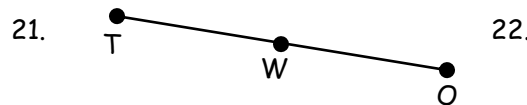
18. $2x - 7 = 9$

19. $3(2x + 8) = 30$

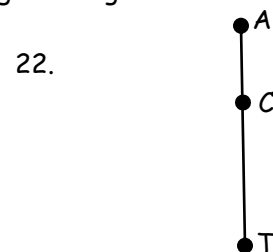
State the two segments which must add up to equal the third segments using the Segment Addition Postulate.



_____ + _____ = _____



_____ + _____ = _____



_____ + _____ = _____