Name Key

Match each property or identity with the appropriate definition.

1. G **Additive Identity**

2. J **Multiplicative Inverse**

3. D **Reflexive Property**

4. B **Transitive Property**

5. H **Associative Property for Multiplication**

6. L **Commutative Property for Multiplication**

7. F **Associative Property for Addition**

8. C **Distributive Property from left over subtraction**

A. Adding opposites produces a result that is the additive identity "0" ADDITIVE INVERSE

B. Two valid statements will initially be given, one can then logically arrive at a third valid statement by passing on the shared trait. TRANSITIVE

C. When a value on the left side of a set of parentheses, is multiplied across terms separated by an operation of subtraction. DIST. PROP. FROM LEFT OVER SUBTRACTION

D. This occurs when an exact copy or duplicate of an expression or equation is created. REFLEXIVE

E. This is the catch 22, If no other property or identity describes the scenario this "replacement property" should be used. SUBSTITUTION

F. When a series of terms are being **added** together one can **regroup** the terms using parentheses but the end result is left unchanged. ASSOCIATIVITY FOR ADDITION

G. When the sum of a number and zero is taken, the result is that the ~~non~~-number is unchanged. ADDITIVE IDENTITY

H. When a series of terms are being **multiplied** together one can **regroup** the terms using parentheses but the end result is left unchanged. ASSOCIATIVITY FOR MULTIPLICATION

I. Multiplying reciprocals produces a result that is the multiplicative identity "1" MULTIPLICATIVE INVERSE

K. This is when the R.H.S. and L.H.S. of an equation are switched, but the individual terms are left in the same order. SYMMETRIC PROPERTY

L. When a series of terms are being **multiplied** together one can **rearrange** the terms without effecting the end result. COMMUTATIVITY FOR MULTIPLICA

H = 40
C = 3

Match each property or identity with the appropriate example.

1. E **Multiplicative Identity**

2. H **Additive Inverse**

3. A **Symmetric Property**

4. F **Transitive Property**

5. B **Distributive Property from left over addition**

6. D **Multiplicative Property of Zero**

7. C **Associative Property for Addition**

8. J **Distributive Property from left over subtraction**

9. K **Commutative Property for Multiplication**

A. If $y = 2f - 7$, then $2f - 7 = y$

B. $\frac{2}{3}(9m + 3) = 6m + 2$

C. $5 + (8 + 9) = (5 + 8) + 9$

D. $-\frac{4}{5}\,0 = 0$

E. $WOZ = 1(WOZ)$

F. If $3(5) = 10 + 5$ and $10 + 5 = 15$, then $3(5) = 15$

G. $(7x - 3)6 = 7x \cdot 6 - 3 \cdot 6$

H. $-\frac{2}{3} + \frac{2}{3} = 0$

I. $8(3w - 9) = 24w - 72$

K. $em + 3 = me + 3$

L. $9 + 7 + 6 = 7 + 6 + 9$

Order of Operation

1. $4^2-\left[3(2-6)+5^2\right]$

1. 3

$16-[3(-4)+25]$

$16-[-12+25]$

$16-[13]$

3

2. $\left(\frac{1}{3}\right)^2-\left[\frac{1}{3}-\frac{1}{4}\div\frac{5}{6}+\frac{1}{2}\right]$

2. $-19/45$

$\frac{1}{9}-\left[\frac{1}{3}-\frac{1}{4}\cdot\frac{6}{5}+\frac{1}{2}\right]$

$\frac{1}{9}-\left[\frac{1}{3}-\frac{3}{10}+\frac{1}{2}\right]$

$\frac{1}{9}-\left[\frac{10}{30}-\frac{9}{30}+\frac{15}{30}\right]$

$\frac{1}{9}-\left[\frac{8}{15}\right]$

$\frac{5}{45}-\frac{24}{45}$

$\frac{-19}{45}$

Write the Solution Set to each of the following.

3. $9x-20=x^2$

r = {–3, 4, 5, 10}

3. {4, 5}

-3: $-57\neq 9$ 5: $25=25$

4: $16=16$ 10: $70\neq 100$

4. $x^2-14\geq x$

r = {– 4, – 1, 1, 4, 10}

4. {-4, 10}

-4: $2\geq -4$ 1: $-13\geq 1$

-1: $-13\geq -1$ 4: $2\geq 4$

10: $86\geq 10$

5. $5x-3\geq x$

r = {–2, –1, 0, 3, 7}

5. {3, 7}

-2: $-13\geq -2$ 3: $12\geq 3$

-1: $-8\geq -1$ 7: $32\geq 7$

0: $-3\geq 0$

Determine if each of the following operations are closed under the given number set.

1. {Whole}; $A \cdot (2B+1)$ — 1. CLOSED

Counter example if applicable:

2. {Even Integers}; (A–1) + (B + 1) — 2. CLOSED

Counter example if applicable:

3. {Whole}; $A^2 - B$ — 3. NOT CLOSED

Counter example if applicable:

2, 7: $4 - 7 = -3$

4. {Odd Integers}; $(A) \cdot (2B)$ — 4. NOT CLOSED

Counter example if applicable:

3, 5: $3(10) = 30$

Use the Distributive Property to simplify each expression.

5. $-11 + 5(2g+7) + 3(2g-5) - 13g$ — 5. $3g + 9$

$-11 + 10g + 35 + 6g - 15 - 13g$

$3g + 9$

6. $-(7r-2) + 3(3r+1)$ — 6. $2r + 5$

$-7r + 2 + 9r + 3$

$2r + 5$

7. $11(2m+5) - 7(5m-2) - 2m$ — 7. $-15m + 69$

$22m + 55 - 35m + 14 - 2m$

$-15m + 69$

8. $\frac{2}{5}(15m+20) - \frac{3}{4}(12m-8) + 2m$ — 8. $-m + 14$

$6m + 8 - 9m + 6 + 2m$

$-m + 14$

Translate the following but DO NOT SOLVE
Use "n" to represent the number unless otherwise stated

1. The difference, of three times a number and seven, is the same as, four less than, nine times the number.

$3n - 7 = 9n - 4$

1 $3n-7=9n-4$

2. Five times the sum, of seven times a number and three, decreased by two, is the same as, twelve more than, ten times the number.

$5(7n + 3) - 2 = 10n + 12$

2 $5(7n+3)-2=10n+1$

3. Four times the difference, of twice a number and seven, is, three less than, six times the number.

$4(2n - 7) = 6n - 3$

3 $4(2n-7)=6n-3$

4. Seven less than, three times the sum, of five times a number and two, is the same as, twenty five, minus, eight times the number.

$3(5n+2) - 7 = 25 - 8n$

4 $3(5n+2)-7=25-8n$

5. Ten times the sum, of five times a number and three, is four less than, nine times the number.

$10(5n+3) = 9n - 4$

5 $10(5n+3)=9n-4$

6. Four times the difference, of seven and six times the a number, is, two more than, eleven times the number.

$4(7 - 6n) = 11n + 2$

6 $4(7-6n)=11n+2$

Find the pattern and fill in the blanks

A. 4, 8, 11, 22, 25

×2 +3 ×2 +3 ...

50, 53, 106, 109

B. 7, 4, 8, 9, 6, 12, 13

−3 ×2 +1 −3 ×2 +1 ...

10, 20, 21

C. 13, 8, 16, 11, 22, 17

−5 ×2 −5 ×2 ...

34, 29, 58, 53