

**A.N.1: Identifying Properties: Identify and apply the properties of real numbers (closure, commutative, associative, distributive, identity, inverse)**

- 1 Which property is illustrated by the equation  $ax + ay = a(x + y)$ ?
  - 1) associative
  - 2) commutative
  - 3) distributive
  - 4) identity
- 2 The statement  $2 + 0 = 2$  is an example of the use of which property of real numbers?
  - 1) associative
  - 2) additive identity
  - 3) additive inverse
  - 4) distributive
- 3 The equation  $3(4x) = (4x)3$  illustrates which property?
  - 1) commutative
  - 2) associative
  - 3) distributive
  - 4) multiplicative inverse
- 4 Tori computes the value of  $8 \cdot 95$  in her head by thinking  $8(100 - 5) = 8 \times 100 - 8 \times 5$ . Which number property is she using?
  - 1) associative
  - 2) distributive
  - 3) commutative
  - 4) closure
- 5 Which property of real numbers is illustrated by the equation  $-\sqrt{3} + \sqrt{3} = 0$ ?
  - 1) additive identity
  - 2) commutative property of addition
  - 3) associative property of addition
  - 4) additive inverse
- 6 The equation  $*(\Delta + \heartsuit) = *\Delta + *\heartsuit$  is an example of the
  - 1) associative law
  - 2) commutative law
  - 3) distributive law
  - 4) transitive law
- 7 While solving the equation  $4(x + 2) = 28$ , Becca wrote  $4x + 8 = 28$ . Which property did she use?
  - 1) distributive
  - 2) associative
  - 3) commutative
  - 4) identity
- 8 If  $M$  and  $A$  represent integers,  $M + A = A + M$  is an example of which property?
  - 1) commutative
  - 2) associative
  - 3) distributive
  - 4) closure

- 9 Which property is illustrated by the equation

$$\frac{3}{2}x + 0 = \frac{3}{2}x?$$

- 1) commutative property of addition
- 2) distributive property
- 3) additive inverse property
- 4) additive identity property

- 10 Which property is represented by the statement

$$\frac{1}{2}(6a + 4b) = 3a + 2b?$$

- 1) commutative
- 2) distributive
- 3) associative
- 4) identity

- 11 Which property is illustrated by the equation

$$6 + (4 + x) = 6 + (x + 4)?$$

- 1) associative property of addition
- 2) associative property of multiplication
- 3) distributive property
- 4) commutative property of addition

- 12 Which property is illustrated by the equation

$$4x(2x - 1) = 8x^2 - 4x?$$

- 1) associative
- 2) commutative
- 3) distributive
- 4) identity

- 13 Which property of real numbers is illustrated by the equation  $52 + (27 + 36) = (52 + 27) + 36$ ?

- 1) commutative property
- 2) associative property
- 3) distributive property
- 4) identity property of addition

- 14 A teacher asked the class to solve the equation  $3(x + 2) = 21$ . Robert wrote  $3x + 6 = 21$  as his first step. Which property did he use?

- 1) associative property
- 2) commutative property
- 3) distributive property
- 4) zero property of addition

- 15 When solving for the value of  $x$  in the equation  $4(x - 1) + 3 = 18$ , Aaron wrote the following lines on the board.

[line 1]  $4(x - 1) + 3 = 18$

[line 2]  $4(x - 1) = 15$

[line 3]  $4x - 1 = 15$

[line 4]  $4x = 16$

[line 5]  $x = 4$

Which property was used *incorrectly* when going from line 2 to line 3?

- 1) distributive
- 2) commutative
- 3) associative
- 4) multiplicative inverse

- 16 A method for solving  $5(x - 2) - 2(x - 5) = 9$  is shown below. Identify the property used to obtain each of the two indicated steps.

$$5(x - 2) - 2(x - 5) = 9$$

(1)  $5x - 10 - 2x + 10 = 9$  (1) \_\_\_\_\_

(2)  $5x - 2x - 10 + 10 = 9$  (2) \_\_\_\_\_

$$3x + 0 = 9$$

$$3x = 9$$

$$x = 3$$

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- |    |        |                 |
|----|--------|-----------------|
| 1  | ANS: 3 | REF: fall0705ia |
| 2  | ANS: 2 | REF: 080802ia   |
| 3  | ANS: 1 | REF: 081319ia   |
| 4  | ANS: 2 | REF: 060306a    |
| 5  | ANS: 4 | REF: 060413a    |
| 6  | ANS: 3 | REF: 080504a    |
| 7  | ANS: 1 | REF: 080601a    |
| 8  | ANS: 1 | REF: 010720a    |
| 9  | ANS: 4 | REF: 060714a    |
| 10 | ANS: 2 | REF: 010812a    |
| 11 | ANS: 4 | REF: 060827a    |
| 12 | ANS: 3 | REF: 080806a    |
| 13 | ANS: 2 | REF: 010924a    |
| 14 | ANS: 3 | REF: 081419ia   |
| 15 | ANS: 1 | REF: 061405ia   |

16 ANS:

(1) Distributive; (2) Commutative

REF: 061132ia