

Name: _____

Date: _____

8A

Per _____

Extra Review for Number Systems Test

- 1) Which equation illustrates the distributive property for real numbers?
- A) $(1.3 \times 0.07) \times 0.63 = 1.3 \times (0.07 \times 0.63)$
 B) $-3(5 + 7) = (-3)(5) + (-3)(7)$
 C) $\sqrt{3} + 0 = \sqrt{3}$
 D) $\frac{1}{3} + \frac{1}{2} = \frac{1}{2} + \frac{1}{3}$
- 2) Which equation illustrates the associative property of addition?
- A) $3 + x = 0$
 B) $x + y = y + x$
 C) $3(x + 2) = 3x + 6$
 D) $(3 + x) + y = 3 + (x + y)$
- 3) Find the value of $4x^2 - 2y$ when $x = -2$ and $y = -1$.
- 4) $|4 - 6 + 7|$
- A) 17
 B) -9
 C) 9
 D) 5
- 5) $10 - |-4 + 1|$
- A) 12
 B) 5
 C) 13
 D) 7
- 6) Which of the following is *not* an irrational number?
- A) $\sqrt{7}$
 B) $\frac{1}{3}$
 C) $-\pi$
 D) π
- 7) Which one of the following sets has the property of closure under multiplication?
- A) $\{-1, 0, 1\}$
 B) $\{1, 2, 3, 6\}$
 C) $\{0, 2, 4\}$
 D) $\{\frac{1}{2}, 0, \frac{1}{2}\}$

Questions 4 and 5 refer to the following:

Evaluate the given expression:

8) If x and y represent integers, which one of the following expressions will *not always* represent another integer?

- A) $x \cdot y$ C) $x + y$
 B) $\frac{x}{y}$ D) $x - y$

9) Simplify the given expression:

$$7 \cdot 3 + 2(3 + 2) =$$

- A) 29 C) 31
 B) 138 D) 210

10) Under what operation is the set of positive rational numbers *not* closed?

- A) division C) multiplication
 B) addition D) subtraction

11) Which of the following is an irrational number?

- A) $\sqrt{8}$ C) $\frac{1}{3}$
 B) $\frac{1}{4}$ D) $\sqrt{9}$

12) Find the value of $5xy^2$ if $x = -2$ and $y = -3$.

Questions 13 and 14 refer to the following:

Determine which number property is illustrated by the given statement:

13) $-6 + 6 = 0$

14) $x + 0 = x$

- A) Addition Property of Zero
 B) Commutative Property of Addition
 C) Property of Additive Inverse
 D) Associative Property of Addition

15) Which of the following are rational numbers?

$$3.14, \pi, -7, 8, \frac{1}{3}$$

16) Find the value of $3(ab)^2$ if $a = 2$ and $b = -1$.

17) If $e \square f$ is defined as $\frac{e^2 + f}{2}$, find the value of $4 \square 6$.

18) If \diamond is a binary operation defined by $m \diamond n = (2m - n)^2$, find the value of $7 \diamond 4$.

19) Which of the following is *not* a rational number?

A) 4

C) $\frac{2}{5}$

B) $\sqrt{3}$

D) $\sqrt{4}$

20) The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates

A) the additive identity element

B) the distributive property of multiplication over addition

C) the associative property of addition

D) the commutative property of addition

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Extra Review for Number Systems Test

1) Which equation illustrates the distributive property for real numbers?

A) $(1.3 \times 0.07) \times 0.63 = 1.3 \times (0.07 \times 0.63)$

B) $-3(5+7) = (-3)(5) + (-3)(7)$

C) $\sqrt{3+0} = \sqrt{3}$

D) $\frac{1}{3} + \frac{1}{2} = \frac{1}{2} + \frac{1}{3}$

2) Which equation illustrates the associative property of addition?

A) $3 + x = 0$

B) $x + y = y + x$

C) $3(x+2) = 3x+6$

D) $(3+x) + y = 3 + (x+y)$

3) Find the value of $4x^2 - 2y$ when $x = -2$ and $y = -1$.

$$\begin{aligned} &4x^2 - 2y \\ &4(-2)^2 - 2(-1) \\ &4(4) + 2 \\ &16 + 2 \\ &\boxed{18} \end{aligned}$$

Questions 4 and 5 refer to the following:

Evaluate the given expression:

4) $|4 - 6 + 7|$

A) 17

B) -9

C) 9

D) 5

$$|4 - 6 + 7|$$

$$|-2 + 7|$$

$$|5|$$

5) $10 - |-4 + 1|$

A) 12

B) 5

C) 13

D) 7

$$10 - |-3|$$

$$10 - 3$$

$$7$$

6) Which of the following is not an irrational number?

A) $\sqrt{7}$

C) $-\pi$

B) $\frac{1}{3}$

D) π

7) Which one of the following sets has the property of closure under multiplication?

A) $\{-1, 0, 1\}$

C) $\{0, 2, 4\}$

B) $\{1, 2, 3, 6\}$

D) $\{\frac{1}{2}, 0, \frac{1}{2}\}$

$-1 \cdot 0 = 0 \checkmark$

$1 \cdot 1 = 1 \checkmark$

$-1 \cdot 1 = -1 \checkmark$

$0 \cdot 1 = 0 \checkmark$

$-1 \cdot -1 = 1 \checkmark$

$0 \cdot 0 = 0 \checkmark$

- 8) If x and y represent integers, which one of the following expressions will *not always* represent another integer?

A) $x \cdot y$ C) $x + y$
 B) $\frac{x}{y}$ D) $x - y$

Division is NOT commutative

- 9) Simplify the given expression:

$$7 \cdot 3 + 2(3 + 2) =$$

A) 29 C) 31
 B) 138 D) 210

$$\begin{aligned} 7 \cdot 3 + 2(3 + 2) \\ 7 \cdot 3 + 2(5) \\ 21 + 10 \\ 31 \end{aligned}$$

- 10) Under what operation is the set of positive rational numbers *not* closed?

A) division C) multiplication
 B) addition D) subtraction

$$5 - 6 \neq 6 - 5$$

$6 - 5 = -1$ and -1 is NOT a positive rational #

- 11) Which of the following is an irrational number?

A) $\sqrt{8}$ C) $\frac{1}{3}$
 B) $\frac{1}{4}$ D) $\sqrt{9}$

- 12) Find the value of $5xy^2$ if $x = -2$ and $y = -3$.

$$\begin{aligned} 5xy^2 \\ 5(-2)(-3)^2 \\ 5(-2)(9) \\ -90 \end{aligned}$$

Questions 13 and 14 refer to the following:

Determine which number property is illustrated by the given statement:

- 13) $-6 + 6 = 0$

Additive Inverse Property

- 14) $x + 0 = x$

A) Addition Property of Zero
 B) Commutative Property of Addition
 C) Property of Additive Inverse
 D) Associative Property of Addition

- 15) Which of the following are rational numbers?

$$3.14, \pi, -7, 8, \frac{1}{3}$$

$$3.14, -7, 8 + \frac{1}{3}$$

- 16) Find the value of $3(ab)^2$ if $a = 2$ and $b = -1$.

$$\begin{aligned} & 3(2 \cdot -1)^2 \\ & 3(-2)^2 \\ & 3(4) \\ & \boxed{12} \end{aligned}$$

- 17) If $e \square f$ is defined as $\frac{e^2 + f}{2}$, find the value of $4 \square 6$.

$$\frac{4^2 + 6}{2} = \frac{22}{2} = \boxed{11}$$

$$\begin{aligned} & 4^2 + 6 \\ & 16 + 6 \\ & 22 \end{aligned}$$

- 18) If \diamond is a binary operation defined by $m \diamond n = (2m - n)^2$, find the value of $7 \diamond 4$.

$$\begin{aligned} & (2 \cdot 7 - 4)^2 \\ & (14 - 4)^2 \\ & (10)^2 \\ & \boxed{100} \end{aligned}$$

- 19) Which of the following is *not* a rational number?

A) 4

C) $\frac{2}{5}$

B) $\sqrt{3}$

D) $\sqrt{4}$

- 20) The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates

A) the additive identity element

B) the distributive property of multiplication over addition

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