

Exam

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

1) The statement $x < y$ means that x lies to the _____ of y on the number line. 1) _____

Answer: left
Diff: 1 Type: SA

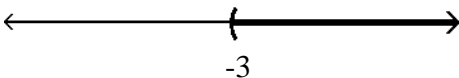
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write an absolute value expression to represent the distance between the two points on the number line and simplify.

2) -3 and 2 2) _____
A) $|-3 - 2|$; -1 B) $|-3 + 2|$; 1 C) $|-3 - 2|$; 5 D) $|-3 - 2|$; -5

Answer: C
Diff: 1 Type: BI

Express the set in interval notation.

3)  3) _____
A) $(-3, \infty)$ B) $[-3, \infty)$ C) $[-3, \infty]$ D) $(-\infty, -3)$

Answer: A
Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

4) $\mathbf{W} = \{0, 1, 2, 3, \dots\}$ is called the set of _____ numbers. 4) _____

Answer: whole
Diff: 1 Type: SA

5) Real numbers that can be expressed as a ratio of two integers are called _____ numbers. 5) _____

Answer: rational
Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

List the elements of $A \cap B$.

- 6) $A = \{-29, 14, 13, -20, 11, -2\}$ and $B = \{-27, -10, 13, 11\}$ 6) _____
A) $\{ \}$ B) $\{13, 11\}$
C) $\{13\}$ D) $\{-29, 14, 13, -20, 11, -2, -27, -10\}$

Answer: B

Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Clear parentheses and combine like terms.

- 7) $-11z^3 - 8z^3 - z^3$ 7) _____

Answer: $-20z^3$

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Clear parentheses by applying the distributive property.

- 8) $4(4s - 4) - 1(8t - 2u)$ 8) _____
A) $16s - 4 - 8t - 2u$ B) $16s - 16 - 8t - 2u$
C) $16s - 16 - 8t + 2u$ D) $16s - 4 - 8t + 2u$

Answer: C

Diff: 3 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

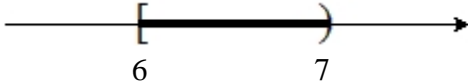
- 9) Listing elements in a set within set braces is called the _____ method to 9) _____
define a set.

Answer: roster

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Express the set in interval notation.

- 10)  10) _____

- A) $(-\infty, 6)$ B) $(6, 7]$ C) $[6, 7)$ D) $[6, 7]$

Answer: C

Diff: 1 Type: BI

Determine whether the statement is true or false.

11) $3 \in \mathbb{N}$

A) True

B) False

11) _____

Answer: A

Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Clear parentheses and combine like terms.

12) $2[3.5(2.5 - 3x) - x(5 + 0.5x)] + 7.5x^2$

12) _____

Answer: $6.5x^2 - 31x + 17.5$

Diff: 4 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Evaluate the root without using a calculator or note that root is not a real number.

13) $\sqrt[3]{64}$

A) -4

B) 5

C) 4

D) Not a real number

13) _____

Answer: C

Diff: 1 Type: BI

Simplify by writing the expression without absolute value bars.

14) $|1|$

A) -1

B) 1

14) _____

Answer: B

Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Clear parentheses and combine like terms.

15) $-2x(4 - 3x) + 16x^2 - 7x$

15) _____

Answer: $22x^2 - 15x$

Diff: 3 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Simplify by writing the expression without absolute value bars.

16) $|w - 2|$ for $w < 2$

A) $-w - 2$

B) $w - 2$

C) $-w + 2$

D) $w + 2$

16) _____

Answer: C

Diff: 1 Type: BI

Determine whether the statement is true or false.

17) $0.\overline{15} \in \mathbb{Z}$

17) _____

A) True

B) False

Answer: B

Diff: 1 Type: BI

Solve the problem.

18) A tool rental store charges a flat fee of \$6.50 to rent a chain saw, and \$3.75 for each day, including the first. Write an equation that expresses the cost y of renting this saw if it is rented for x days.

18) _____

A) $y = 6.50x + 3.75$

B) $y = 3.75x - 6.50$

C) $y = 3.75(x + 6.50)$

D) $y = 3.75x + 6.50$

Answer: D

Diff: 3 Type: BI

Determine whether the statement is true or false.

19) $6 \in \mathbb{N}$

19) _____

A) False

B) True

Answer: B

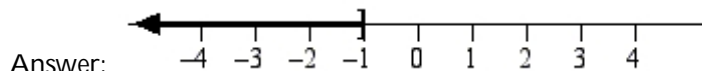
Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Graph the set and express it in interval notation.

20) $\{x \mid x \leq -1\}$

20) _____



$(-\infty, -1]$

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Clear parentheses and combine like terms.

21) $3(2x - 5) + 14x$

21) _____

A) $20x - 5$

B) $15x$

C) $20x - 15$

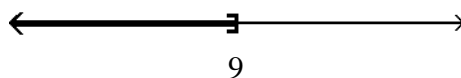
D) $6x - 15 + 14x$

Answer: C

Diff: 1 Type: BI

Express the set in interval notation.

22)



22) _____

A) $(-\infty, 9)$

B) $[-\infty, 9]$

C) $(-\infty, 9]$

D) $(9, \infty)$

Answer: C

Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

23) The _____ of x is denoted by $|x|$. 23) _____

Answer: absolute, value

Diff: 1 Type: SA

24) $\mathbf{Z} = \{ \dots, -3, -2, -1, 0, 1, 2, 3, \dots \}$ is called the set of _____. 24) _____

Answer: integers

Diff: 1 Type: SA

25) Given the expression b^n , the value of b is called the _____ and n is called the _____ 25) _____

Answer: base, exponent or power

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Express the set in interval notation.

26)  26) _____

- A) $[3, 9)$ B) $(3, 9]$ C) $(-\infty, 3)$ D) $[3, 9]$

Answer: B

Diff: 1 Type: BI

Determine the intersection $X \cap Y$. Express the answer in interval notation.

27) $X = \{x \mid x \geq 18\}$ and $Y = \{x \mid x < 11\}$ 27) _____

- A) $(-\infty, 11] \cup (18, \infty)$ B) $(11, 18]$
C) $[11, 18)$ D) $\{ \}$

Answer: D

Diff: 3 Type: BI

Determine whether the statement is true or false.

28) $-3.\overline{51} > -3.\overline{5\overline{1}}$ 28) _____

- A) True B) False

Answer: B

Diff: 3 Type: BI

Apply the associative property of addition.

29) $(r + 3) + 7$ 29) _____

- A) $r + 3$ B) $r + 7$ C) $r + 10$ D) $r + 4$

Answer: C

Diff: 1 Type: BI

Solve the problem.

- 30) The width of a rectangle is 2 ft less than 4 times the length. Write a model for the width W in terms of the length L . 30) _____
A) $W = 4L + 2$ B) $W = 4L - 2$ C) $W = 2L - 4$ D) $W = 2L + 4$

Answer: B
Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

- 31) $\mathbf{N} = \{1, 2, 3, \dots\}$ is called the set of _____ numbers. 31) _____

Answer: natural
Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write the statement as an inequality.

- 32) The quantity $(t + 4)$ exceeds 31. 32) _____
A) $t + 4 \geq 31$ B) $t + 4 < 31$ C) $t + 4 \leq 31$ D) $t + 4 > 31$

Answer: D
Diff: 3 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

- 33) Write an absolute value expression to represent the distance between a and b on the number line: _____ 33) _____

Answer: $|a - b|$ or $|b - a|$
Diff: 1 Type: SA

- 34) An _____ number is a real number that cannot be expressed as a ratio of two integers. 34) _____

Answer: irrational
Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Evaluate the root without using a calculator or note that root is not a real number.

- 35) $\sqrt[3]{-125}$ 35) _____
A) 6 B) 5
C) -5 D) Not a real number

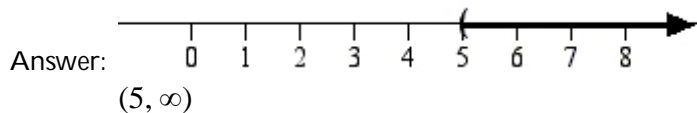
Answer: C
Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Graph the set and express it in interval notation.

36) $\{x \mid x > 5\}$

36) _____



Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine whether the statement is true or false.

37) $7.5 \notin \mathbb{Z}$

37) _____

A) True

B) False

Answer: A

Diff: 1 Type: BI

Evaluate the expression.

38) $(-11)^2$

38) _____

A) 121

B) -9

C) -121

D) -22

Answer: A

Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

39) A set can be defined using _____ - _____ notation by using a description of the set. 39) _____

Answer: set, builder

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Write the statement as an inequality.

40) u is at least 10.

40) _____

A) $u > 10$

B) $u \leq 10$

C) $u < 10$

D) $u \geq 10$

Answer: D

Diff: 3 Type: BI

Determine whether the statement is true or false.

41) $13 < -\sqrt{13}$

41) _____

A) True

B) False

Answer: B

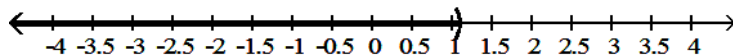
Diff: 3 Type: BI

For the following exercise, interval notation is given for several sets of real numbers. Graph the set and write the corresponding set-builder notation.

42) $(-\infty, 1.1]$

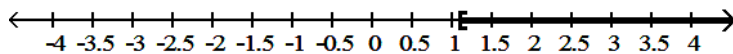
42) _____

A)



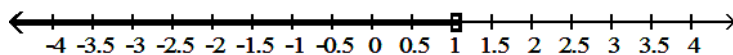
$\{x \mid x < 1.1\}$

B)



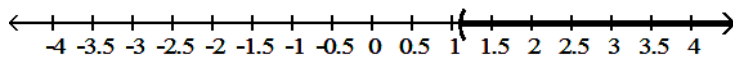
$\{x \mid x \geq 1.1\}$

C)



$\{x \mid x \leq 1.1\}$

D)



$\{x \mid x > 1.1\}$

Answer: C

Diff: 3 Type: BI

Determine the union $X \cup Y$. Express the answer in interval notation.

43) $X = \{x \mid x > -9\}$ and $Y = \{x \mid x \leq 16\}$

43) _____

A) $\{ \}$

B) All real numbers

C) $(-\infty, 16] \cup (-9, \infty)$

D) $(16, -9]$

Answer: B

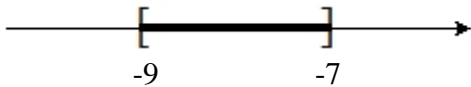
Diff: 3 Type: BI

Clear parentheses by applying the distributive property.

- 44) $-(-4s + 9t + 7)$ 44) _____
A) $4s + 9t + 7$ B) $4s - 9t - 7$ C) $4s - 9t + 7$ D) $-4s - 9t - 7$

Answer: B
Diff: 3 Type: BI

Express the set in interval notation.

- 45)  45) _____
A) $[-9, -7]$ B) $(-\infty, -9)$ C) $(-9, \infty)$ D) $(-9, -7]$

Answer: A
Diff: 1 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

- 46) The symbol \sqrt{x} represents the principal _____ root of x . 46) _____

Answer: square
Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Simplify by writing the expression without absolute value bars.

- 47) $|x + 7|$ for $x \geq -7$ 47) _____
A) $x - 7$ B) $-x - 7$ C) $x + 7$ D) $-x + 7$

Answer: C
Diff: 1 Type: BI

Determine the intersection $X \cap Y$. Express the answer in interval notation.

- 48) $X = \{x \mid x \geq -2\}$ and $Y = \{x \mid x < -6\}$ 48) _____
A) $(-\infty, -6] \cup (-2, \infty)$ B) $[-6, -2)$
C) $\{ \}$ D) $(-6, -2]$

Answer: C
Diff: 3 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

- 49) A _____ is a collection of items called elements. 49) _____

Answer: set
Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine the union $X \cup Y$. Express the answer in interval notation.

50) $X = \{x \mid x > 14\}$ and $Y = \{x \mid x \leq 11\}$

50) _____

A) $(11, 14]$

B) $[11, 14)$

C) $\{ \}$

D) $(-\infty, 11] \cup (14, \infty)$

Answer: D

Diff: 3 Type: BI

Solve the problem.

51) A tool rental store charges a flat fee of \$9.00 to rent a chain saw, and \$4.00 for each day, including the first. If you need to rent the saw and absolutely refuse to spend more than \$49.00, what's the maximum number of days you can keep the saw?

51) _____

A) 7 days

B) 14 days

C) 5 days

D) 10 days

Answer: D

Diff: 3 Type: BI

Apply the associative property of multiplication.

52) $-\frac{5}{11} \left(-\frac{11}{5} p \right)$

52) _____

A) $-5p$

B) $6p$

C) p

D) $-55p$

Answer: C

Diff: 1 Type: BI

Write the subset of real numbers in set-builder notation.

53) $(-4, 4]$

53) _____

A) $\{x \mid -4 < x \leq 4\}$

B) $\{x \mid -4 < x < 4\}$

C) $\{x \mid -4 \leq x \leq 4\}$

D) $\{x \mid -4 \leq x < 4\}$

Answer: A

Diff: 3 Type: BI

Apply the commutative property of multiplication.

54) $w \cdot \frac{5}{6}$

54) _____

A) $\frac{5}{6}w$

B) $w \cdot \frac{6}{5}$

C) $-\frac{5}{6}w$

D) $\frac{6}{5}w$

Answer: A

Diff: 1 Type: BI

Simplify by writing the expression without absolute value bars.

55) $\frac{15 - z}{|15 - z|}$ for $z < 15$ 55) _____

- A) 1 B) -15 C) -1 D) 15

Answer: A

Diff: 1 Type: BI

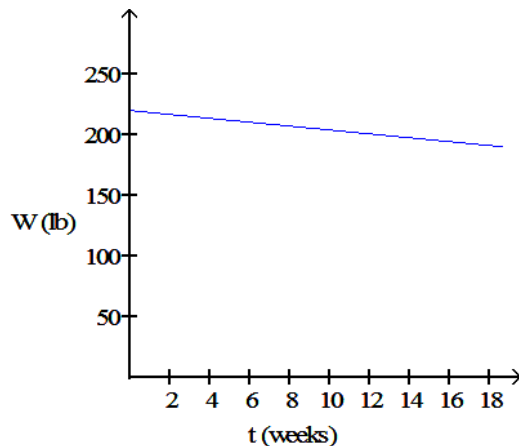
Solve the problem.

56) A new diet program guarantees you will lose 1.6 lb per week. A male with a starting weight of 220 lb is modeled by 56) _____

$$W = 220 - 1.6t$$

where t is the number of weeks after starting the diet.

Use the model to determine the male's weight after 19 weeks.



- A) 189.6 lb B) 208.6 lb C) 218.4 lb D) 170.6 lb

Answer: A

Diff: 3 Type: BI

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide the missing information.

57) The expression $\frac{0}{5}$ equals _____, whereas $\frac{5}{0}$ is _____. 57) _____

Answer: 0, undefined

Diff: 1 Type: SA

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

58) A tool rental store charges a flat fee of \$8.50 to rent a chain saw, and \$4.00 for each day, including the first. Use a linear equation to find the cost of renting the saw for one week. 58) _____

- A) \$28.00 B) \$12.50 C) \$36.50 D) \$32.50

Answer: C

Diff: 3 Type: BI

Answer Key

Testname: CH0-01

- 1) left
Diff: 1 Page Ref:
Topic:
- 2) C
Diff: 1 Page Ref:
Topic:
- 3) A
Diff: 1 Page Ref:
Topic:
- 4) whole
Diff: 1 Page Ref:
Topic:
- 5) rational
Diff: 1 Page Ref:
Topic:
- 6) B
Diff: 1 Page Ref:
Topic:
- 7) $-20z^3$
Diff: 1 Page Ref:
Topic:
- 8) C
Diff: 3 Page Ref:
Topic:
- 9) roster
Diff: 1 Page Ref:
Topic:
- 10) C
Diff: 1 Page Ref:
Topic:
- 11) A
Diff: 1 Page Ref:
Topic:
- 12) $6.5x^2 - 31x + 17.5$
Diff: 4 Page Ref:
Topic:
- 13) C
Diff: 1 Page Ref:
Topic:
- 14) B
Diff: 1 Page Ref:
Topic:
- 15) $22x^2 - 15x$
Diff: 3 Page Ref:
Topic:
- 16) C
Diff: 1 Page Ref:
Topic:

Answer Key

Testname: CH0-01

17) B

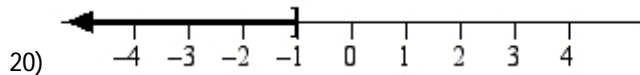
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18) D

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Topic:

19) B

Diff: 1 Page Ref:
Topic:



$(-\infty, -1]$

Diff: 1 Page Ref:
Topic:

21) C

Diff: 1 Page Ref:
Topic:

22) C

Diff: 1 Page Ref:
Topic:

23) absolute, value

Diff: 1 Page Ref:
Topic:

24) integers

Diff: 1 Page Ref:
Topic:

25) base, exponent or power

Diff: 1 Page Ref:
Topic:

26) B

Diff: 1 Page Ref:
Topic:

27) D

Diff: 3 Page Ref:
Topic:

28) B

Diff: 3 Page Ref:
Topic:

29) C

Diff: 1 Page Ref:
Topic:

30) B

Diff: 1 Page Ref:
Topic:

31) natural

Diff: 1 Page Ref:
Topic:

Answer Key

Testname: CH0-01

32) D

Diff: 3 Page Ref:
Topic:

33) $|a - b|$ or $|b - a|$

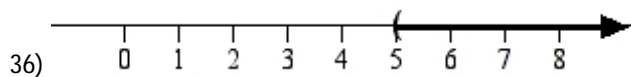
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Topic:

34) irrational

Diff: 1 Page Ref:
Topic:

35) C

Diff: 1 Page Ref:
Topic:



$(5, \infty)$

Diff: 1 Page Ref:
Topic:

37) A

Diff: 1 Page Ref:
Topic:

38) A

Diff: 1 Page Ref:
Topic:

39) set, builder

Diff: 1 Page Ref:
Topic:

40) D

Diff: 3 Page Ref:
Topic:

41) B

Diff: 3 Page Ref:
Topic:

42) C

Diff: 3 Page Ref:
Topic:

43) B

Diff: 3 Page Ref:
Topic:

44) B

Diff: 3 Page Ref:
Topic:

45) A

Diff: 1 Page Ref:
Topic:

46) square

Diff: 1 Page Ref:
Topic:

Answer Key

Testname: CH0-01

- 47) C
Diff: 1 Page Ref:
Topic:
- 48) C
Diff: 3 Page Ref:
Topic:
- 49) set
Diff: 1 Page Ref:
Topic:
- 50) D
Diff: 3 Page Ref:
Topic:
- 51) D
Diff: 3 Page Ref:
Topic:
- 52) C
Diff: 1 Page Ref:
Topic:
- 53) A
Diff: 3 Page Ref:
Topic:
- 54) A
Diff: 1 Page Ref:
Topic:
- 55) A
Diff: 1 Page Ref:
Topic:
- 56) A
Diff: 3 Page Ref:
Topic:
- 57) 0, undefined
Diff: 1 Page Ref:
Topic:
- 58) C
Diff: 3 Page Ref:
Topic: