Student: _____ **Instructor:** Pangyen Weng **Assignment:** HW 1A
Date: _____ **Course:** MATH 115-51 Summer 2018

1. Which numbers below are integers but not natural numbers?

$1,\ -7.95,\ -\frac{33}{7},\ 0,\ -13,\ \sqrt{6},\ 23$

List the number(s).
[ ] (Use a comma to separate answers as needed.)

2. Name the whole numbers from the list below.

$-18,\ 0,\ 65,\ 8.98,\ \sqrt{6},\ \sqrt{4},\ 8\frac{1}{8},\ -\frac{20}{43},\ 1.1616616661...$

The whole numbers are [ ].
(Use commas to separate answers as needed.)

3. Determine whether the inequality $8 \geq -8$ is true or false.

Choose the correct answer below.

- False
- True

4. Use either $<$ or $>$ to make this a true statement.

$-4 \square -11$

-4 [ ] -11

5. Classify the inequality as true or false.

$\sqrt{47} \geq \sqrt{47}$

Choose the correct answer below.

- **A.** The statement is true because $\sqrt{47} = \sqrt{47}$ is a true statement.
- **B.** The statement is false because $\sqrt{47} > \sqrt{47}$ is a false statement.
- **C.** The statement is true because $\sqrt{47} > \sqrt{47}$ is a true statement.
- **D.** The statement is false because $\sqrt{47} = \sqrt{47}$ is a false statement.

6. Use either $<$ or $>$ to make this a true statement.

$-9 \square -18$

-9 [ ] -18

7. Find the absolute value.

$|0|$

The absolute value is [ ].

8. Find the absolute value.

$|-2.6|$

$|-2.6| =$ ☐
(Simplify your answer. Type an integer or a decimal.)

9. Find the distance between the points on a number line.

$-6, 4$

The distance is ☐.
(Simplify your answer.)

10. Find the distance between the points on a number line.

$-6, -34$

The distance is ☐.

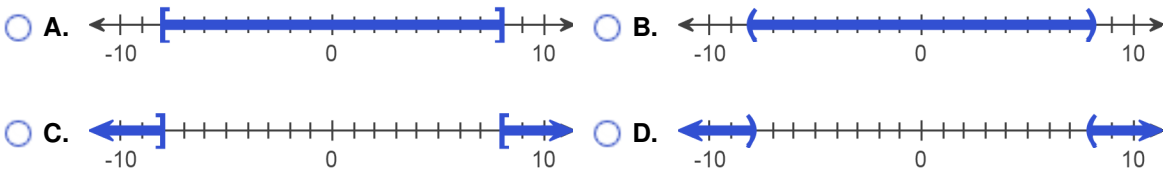
11. Write interval notation and graph the interval.

$\{x| -8 < x < 8\}$

What is the interval?

☐ (Type your answer in interval notation.)

Which graph is correct?



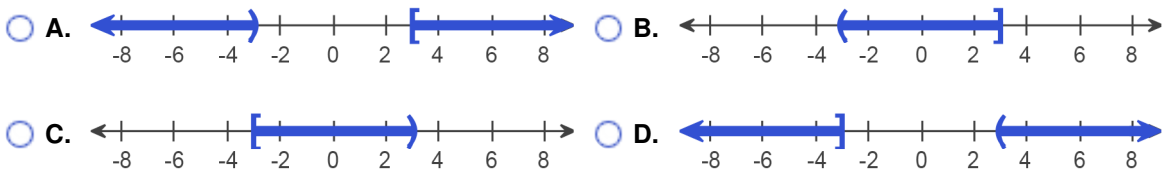
12. Write interval notation and graph the interval.

$\{x| -3 < x \leq 3\}$

What is the interval?

☐ (Type your answer in interval notation.)

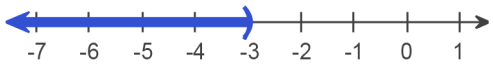
Which graph is correct?

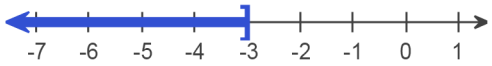


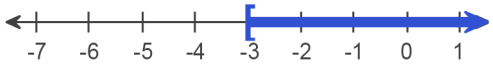
13. Write interval notation and graph the interval.

$\{x|x \leq -3\}$

Choose the correct graph.

A. 

B. 

C. 

What is the interval?

(Type your answer in interval notation.)

14. Write the set below in interval notation and graph the interval.

$\{x|x > 0.8\}$

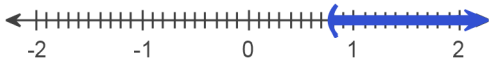
Write the set in interval notation.

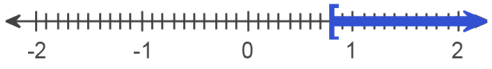
(Type your answer in interval notation. Use integers or decimals for any numbers in the expression.)

Choose the correct graph of the interval below.

A. 

B. 

C. 

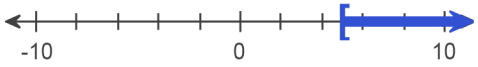
D. 

15. Write the set $\{x \mid 5 < x\}$ in interval notation. Then graph the interval.

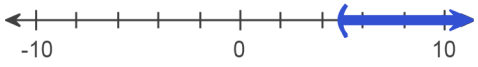
Choose the correct interval.

- **A.** $(-\infty, 5)$
- **B.** $[5, \infty)$
- **C.** $(5, \infty)$
- **D.** $(-\infty, 5]$

Choose the graph of the interval.

- **A.** 

- **B.** 

- **C.** 

- **D.** 

16. Write interval notation for the set $\{x \mid -10 \le x \le 10\}$.

Choose the correct interval.

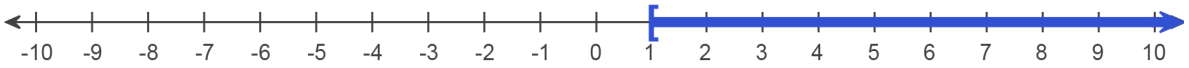
- **A.** $(-10, 10)$
- **B.** $[-10, 10]$
- **C.** $(-10, 10]$
- **D.** $[-10, 10)$

17. Write interval notation for the given graph.

Choose the correct interval.

- **A.** $(-1, 3)$
- **B.** $[-3, 1]$
- **C.** $(-3, 1)$
- **D.** $\{-3, 1\}$

18. Write interval notation for the graph.



Choose the correct interval below.

- **A.** $(1, \infty)$
- **B.** $[1, 10)$
- **C.** $[1, \infty)$
- **D.** $[1, \infty]$

19. Write interval notation for the graph.

Choose the correct interval.

- **A.** $[-2, 9)$
- **B.** $\{-2, 9\}$
- **C.** $[-2, 9]$
- **D.** $(-9, 2)$

20. Express the given graph in interval notation.

[ ] (Type your answer in interval notation.)

21. Write an equivalent expression without negative exponents.

6^{-4}

$6^{-4} =$ [ ]
(Use positive exponents only.)

22. Rewrite using a positive exponent.

$$\frac{1}{p^{-2}}$$

$$\frac{1}{p^{-2}} =$$ [ ]
(Simplify your answer. Type exponential notation with positive exponents.)

23. Write an equivalent expression without negative exponents.

$$\frac{x^{-3}}{y^{-2}}$$

$$\frac{x^{-3}}{y^{-2}} =$$ [ ]
(Use positive exponents only.)

24. Simplify.

$$\left(\frac{b}{a}\right)^2$$

$\left(\frac{b}{a}\right)^2 =$ ☐

(Type exponential notation with positive exponents.)

25. Evaluate the expression.

4^0

$4^0 =$ ☐

(Simplify your answer. Type an integer or a decimal.)

26. Divide and simplify.

$\frac{t^3}{t^{-6}}$

$\frac{t^3}{t^{-6}} =$ ☐

(Simplify your answer. Type exponential notation using positive exponents.)

27. Simplify.

$y^{-6} \cdot y^{-4}$

$y^{-6} \cdot y^{-4} =$ ☐

(Use positive exponents only.)

28. Simplify. Assume $n \neq 0$.

$\left(n^{-5}\right)^7$

$\left(n^{-5}\right)^7 =$ ☐

(Type exponential notation with positive exponents.)

29. Calculate.

$2 \cdot 3 - 5 \cdot 2^2 + 7(3 - 1)$

$2 \cdot 3 - 5 \cdot 2^2 + 7(3 - 1) =$ ☐

30. Multiply.

$(3x^2)(8x^9)$

The answer is ☐.

(Simplify your answer.)

31. Multiply.

$(x + 9)(x - 3)$

$(x + 9)(x - 3) =$ ☐

(Simplify your answer.)

32. Multiply.

$(a + 5)(a + 6)$

$(a + 5)(a + 6) =$ ☐

(Simplify your answer.)

33. Find the product.

$(4y - 7)(y + 3)$

$(4y - 7)(y + 3) =$ ☐
(Simplify your answer.)

34. Multiply.

$(x + 8)^2$

The answer is ☐.
(Simplify your answer.)

35. Multiply.

$(x + 7)(x - 7)$

$(x + 7)(x - 7) =$ ☐
(Simplify your answer.)

36. Factor the trinomial.

$c^2 - 5c + 4$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** $c^2 - 5c + 4 =$ _____ (Factor completely.)
- **B.** The polynomial is prime.

37. Factor the trinomial.

$t^2 + 12t + 35$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The answer is _____. (Factor completely.)
- **B.** The trinomial is not factorable.

1. $-13,0$

2. $65,\sqrt{4},0$

3. True

4. $>$

5. A. The statement is true because $\sqrt{47} = \sqrt{47}$ is a true statement.

6. $>$

7. 0

8. 2.6

9. 10

10. 28

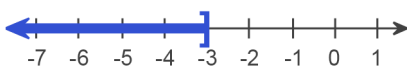
11. $(-8, 8)$

B. 

12. $(-3,3]$

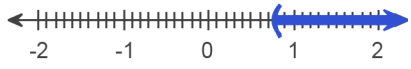
B. 

13.

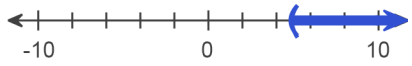
B. 

$(-\infty, -3]$

14. $(0.8,\infty)$

C. 

15. C. $(5, \infty)$

C. 

16. B. $[-10, 10]$

17. C. $(-3, 1)$

18. C. $[1, \infty)$

19. A. $[-2, 9)$

20. $(-\infty, 6)$

21. $\frac{1}{6^4}$

22. p^2

23. $\frac{y^2}{x^3}$

24. $\frac{b^2}{a^2}$

25. 1

26. t^9

27. $\frac{1}{y^{10}}$

28. $\frac{1}{n^{35}}$

29. 0

30. $24x^{11}$

31. $x^2 + 6x - 27$

32. $a^2 + 11a + 30$

33. $4y^2 + 5y - 21$

34. $x^2 + 16x + 64$

35. $x^2 - 49$

36. A. $c^2 - 5c + 4 =$ **(c – 4)(c – 1)** (Factor completely.)

37. A. The answer is **(t + 7)(t + 5)**. (Factor completely.)