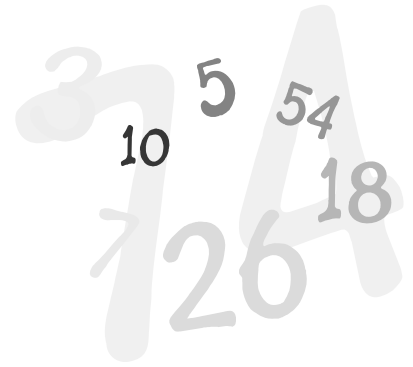


15 x 15 Multiplication Tables (Completed)

X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
11	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165
12	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
13	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195
14	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

20 x 20 Multiplication Tables (Completed)

X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180
10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
11	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220
12	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
13	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260
14	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
16	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320
17	17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340
18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360
19	19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380
20	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400

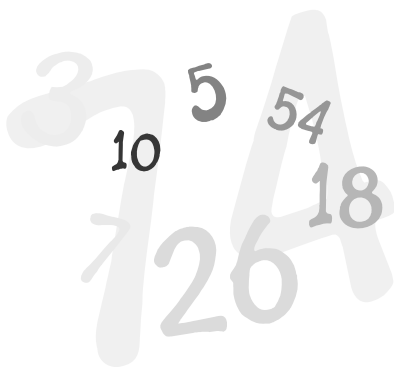


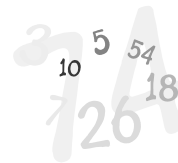
UNIT 1

NUMBERS

AND

OPERATIONS





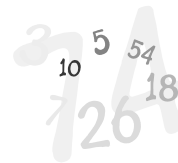
A. Algebraic Skills

Unit 1 Numbers and Operations Outline

1. Sets of Numbers and Their Graphs
Exercise 1
2. Adding and Subtracting Integers
Exercise 2
3. Multiplying and Dividing Integers
Exercise 3
4. Order of Operations with Integers
Exercise 4

Unit 1 Review

Unit 1 Exam



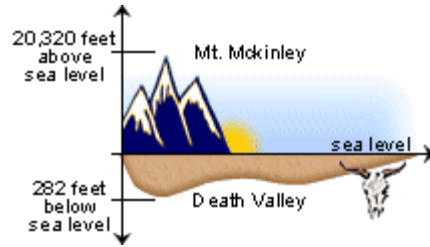
A. Algebraic Skills

Unit 1 Numbers and Operations Objectives

- To identify the sets of numbers.
- To represent numbers on a number line.
- To add and subtract integers.
- To multiply and divide integers.
- To apply the order of operations to simplify expressions.

A. Algebraic Skills**Unit 1 Numbers and Operations Introduction**

Problem: The highest elevation in North America is Mt. McKinley, which is 20,320 feet above sea level. The lowest elevation is Death Valley, which is 282 feet below sea level. What is the distance from the top of Mt. McKinley to the bottom of Death Valley?



Solution: The distance from the top of Mt. McKinley to sea level is 20,320 feet and the distance from sea level to the bottom of Death Valley is 282 feet. The total distance is the sum of 20,320 and 282, which is 20,602 feet.

The problem above uses the notion of opposites: Above sea level is the opposite of below sea level. Here are some more examples of opposites:

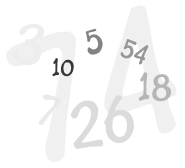
top, bottom

increase, decrease

forward, backward

positive, negative

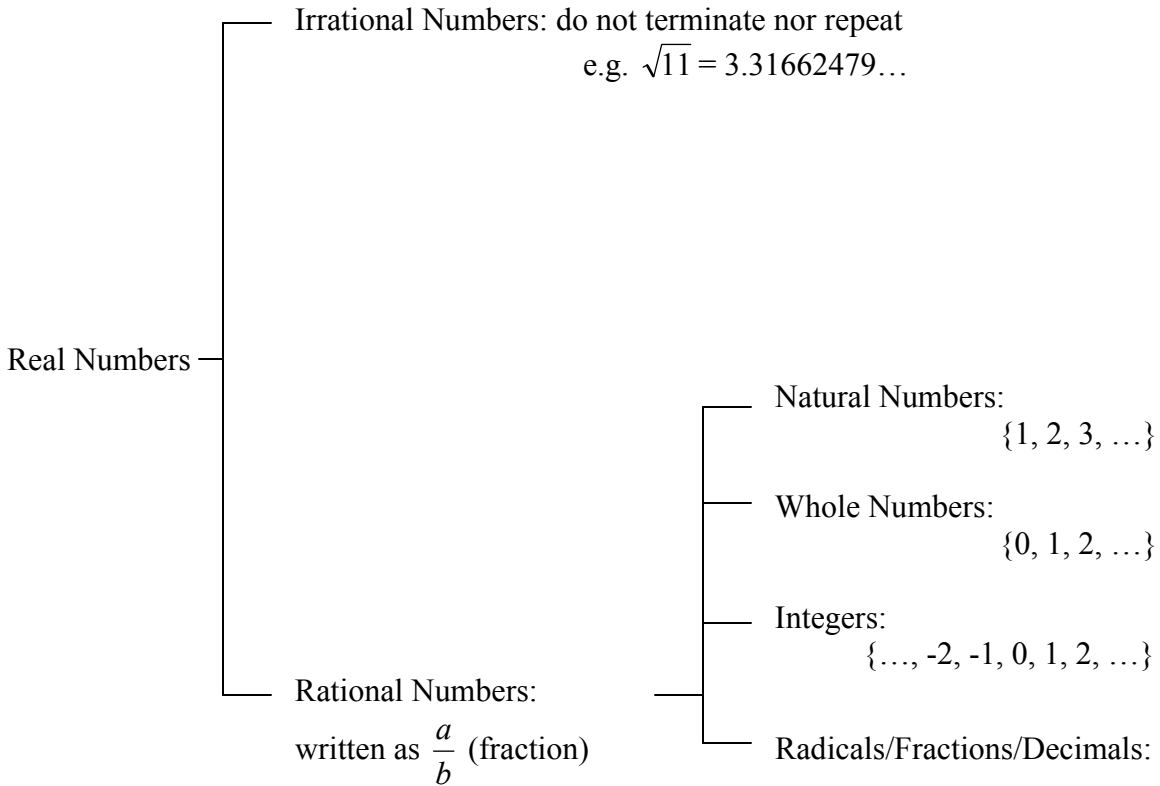
You could solve the problem above using integers. Integers are the set of whole numbers and their opposites. A number line can be used to represent the set of integers.



Math 11 SWBAT identify the sets of numbers.
 Unit 1 SWBAT represent numbers on a number line.
 Lesson 1

1. Sets of Numbers and Their Graphs

Types of Number Systems:



Terminate: $\frac{1}{2} = 0.5 = \frac{\sqrt{1}}{\sqrt{4}}$

Repeat: $\frac{7}{11} = 0.\overline{63}$

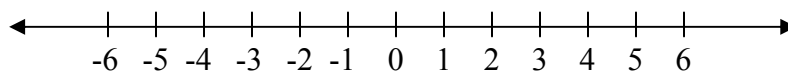
Decide how the following numbers can be classified. Write the symbol N (Natural), W (Whole), I (Integers), or Q (Radicals/Fractions/Decimals) for the set that you choose.

Ex. 1. $-5, 0,$ and 4 are integers (I).

Ex. 2. $\frac{1}{2}, \sqrt{4},$ and 0.9 are radicals/fractions/decimals (Q).

Ex. 3. $5, 700,$ and 892 are natural numbers (N).

Number Line: A number line is used to represent the real numbers.



Less than: $<$

Greater than: $>$

Less than and equal to: \leq

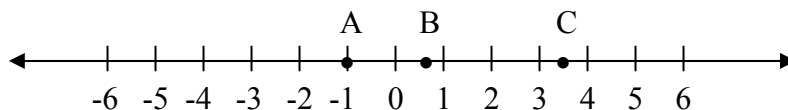
Greater than and equal to: \geq

Ex. 4. Graph:

A: -1

B: $\frac{3}{4}$

C: 3.4

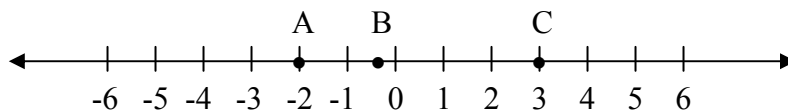


Ex. 5. Graph:

A: -2

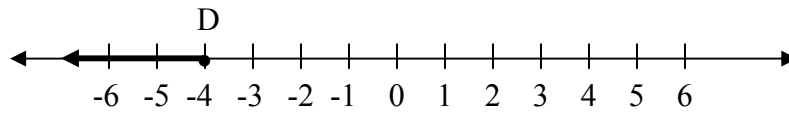
B: $-\frac{1}{3}$

C: 3



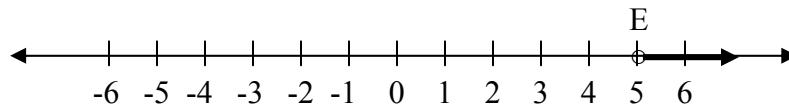
Ex. 6. Graph:

D: $x \leq -4$



Ex. 7. Graph

E: $y > 5$



Exercise 1

**Math 11 Unit 1****Exercise 1**

Decide how the following numbers can be classified. Write the symbol N (Natural), W (Whole), I (Integers), or Q (Radicals/Fractions/Decimals) for the set that you choose.

1. 1, 2, and 3

6. 0, 10, 20

2. -4, 0, and 4

7. -9, -2, 3

3. $\frac{1}{2}, \frac{3}{4}, \frac{5}{7}$

8. 0, 3, 4

4. 0.9, 4.2, 0

9. -2, 0.3, $\sqrt{9}$

5. 4, 8, 12

10. $\sqrt{6}, \frac{\sqrt{1}}{\sqrt{4}}, 5$

Decide which set of numbers is most appropriate for the situation described. Write the symbol N (Natural), W (Whole), I (Integers), or Q (Radicals/Fractions/Decimals) for the set that you choose.

11. The number of bananas in a fruit basket.

12. The number of games won by the Roughriders one quarter of the way into the football season.

13. The profit or loss to the nearest dollar at the year end of A&B sound.

14. The average of any two integers.

15. The batting average of a major league baseball player.



For each example draw a number line and then graph A, B, C, D and E.

16. A: 7 B: 4 C: 2 D: 0 E: 6

17. A: 4 B: 8 C: 12 D: 1 E: 6

18. A: -3 B: 1 C: -1 D: 5 E: -5

19. A: 2 B: -4 C: -2 D: -6 E: 0

20. A: -1.7 B: 0 C: -4.6 D: 3.1 E: 6.5

21. A: $\frac{1}{2}$ B: $3\frac{3}{4}$ C: $-2\frac{1}{4}$ D: $-\frac{1}{2}$ E: -4

22. A: -5.3 B: 0.6 C: $-\frac{3}{4}$ D: -1 E: 3.7



23. A: $\frac{-1}{2}$ B: $\frac{1}{4}$ C: $5\frac{1}{3}$ D: $-3\frac{1}{3}$ E: $-5\frac{1}{5}$

24. A: 3.4 B: 0.8 C: 5.7 D: - 1.2 E: -3.5

25. A: $y > 5$ B: $x < -2$

26. A: $t \leq -1$ B: $u \geq 3$

27. A: $d > -3$ B: $e \leq -5$

28. A: $s > 3$ B: $t < 0$

29. A: $f > 1$ B: $g \leq -2$

30. A: $h \leq -4$ B: $i \geq 0$

Math 11 SWBAT add and subtract integers.
Unit 1
Lesson 2

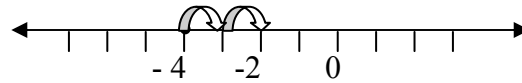
2. Adding and Subtracting Integers

Use a number line to add and subtract integers.

Addition: For positive numbers, move to the right on the number line.
For negative numbers, move to the left on the number line.
Always begin at 0.

Ex. 1. Add $(-4) + (+2)$

↑
= -2
start on this number



Ex. 2. Add $(-1) + (-5)$

$$= -6$$

Ex. 3. Add $(+6) + (-8)$

$$= -2$$

Subtraction: To subtract, add the opposite of the integer.

Ex. 4. Subtract $9 - (-6)$

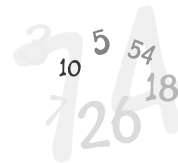
$$= 9 + (+6)$$

$$= 15$$

Ex. 5. Subtract $-3 - 14$

$$= -3 + (-14)$$

$$= -17$$



Ex. 6. Simplify $-13 + 12 - (-6) - 7$

$$= -13 + 12 + (+6) + (-7)$$

$$= -1 + (+6) + (-7)$$

$$= 5 + (-7)$$

$$= -2$$

Ex. 7. Simplify $10 - 3 - (-5) + 2$

$$= 10 + (-3) + (+5) + 2$$

$$= 7 + (+5) + 2$$

$$= 12 + 2$$

$$= 14$$

Exercise 2



Math 11 Unit 1
Exercise 2

Simplify.

1. $(+4) + (+11)$

8. $8 + (-9)$

2. $(+2) + (+23)$

9. $12 + (-15)$

3. $(8) + (+19)$

10. $14 - (-13)$

4. $(-6) + (-4)$

11. $11 - (-14)$

5. $(-3) + (-7)$

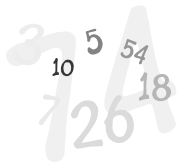
12. $(-12) - 24$

6. $(-8) + (-4)$

13. $(-14) - 10$

7. $5 + (-7)$

14. $21 - 32$



15. $18 - 33$

23. $(-11) + 2 + 6$

16. $25 - 37$

24. $8 + (-5) + (-3)$

17. $72 - 72$

25. $18 + (-12) + (-6)$

18. $(-44) - (-35)$

26. $9 - 8 - (-12)$

19. $(-55) - (-41)$

27. $10 - 3 - (-7)$

20. $(-2) + (-4) + (-3)$

28. $15 - (-6) - 41$

21. $(-9) + (-2) + (-6)$

29. $13 - 26 - (-8)$

22. $3 + 2 + (-7)$

30. $(-8) - (-13) - 26$

Math 11 SWBAT multiply and divide integers.
Unit 1
Lesson 3

3. Multiplying and Dividing Integers

When multiplying and dividing, the signs will change:

$$\begin{array}{cccccc} + & \cdot & + & = & + \\ - & \cdot & - & = & + \\ - & \cdot & + & = & - \\ + & \cdot & - & = & - \end{array}$$

Ex. 1. $(+3) \times (+2)$

$$= +6$$

Ex. 2. $(-14) \div (-7)$

$$= +2$$

Ex. 3. $(-2) \times (+12)$

$$= -24$$

Ex. 4. $\frac{28}{-4}$

$$= -7$$

Ex. 5. $(-5)(-6)(-3)$

$$= (30)(-3)$$

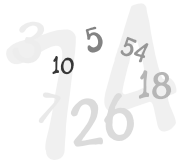
$$= -90$$

Ex. 6. $-(2)(8)(-6)$

$$= (-2)(-48)$$

$$= 96$$

Exercise 3



Math 11 Unit 1

Exercise 3

Simplify.

1. 11×9

7. $(-7)5$

2. $(-2)(-5)$

8. $-42 \div -7$

3. $(-4)(-5)$

9. $-64 \div -8$

4. $(-6)(-5)$

10. $-24 \div -8$

5. $(-5)(-8)$

11. $\frac{-40}{-4}$

6. $2(-8)$

12. $\frac{-48}{-6}$



13. $42 \div -6$

20. $(-9)(1)(6)$

14. $-70 \div 10$

21. $(-6)(3)(4)$

15. $\frac{-18}{2}$

22. $(4)(-3)(-6)$

16. $\frac{-40}{8}$

23. $-(-7)(-3)(-3)$

17. $\frac{-36}{9}$

24. $-(-2)(-7)(-4)$

18. $(-5)(4)(-1)$

25. $-(-2)(-4)(6)$

19. $(-3)(2)(-7)$



Math 11 SWBAT apply the order of operations to simplify expressions.
Unit 1
Lesson 4

4. Order of Operations with Integers

B rackets

E xponents

D ivision

M ultiplication

} — in order from left to right

A ddition

S ubtraction

} — in order from left to right

When an expression contains brackets within brackets then the inner brackets are evaluated first.

Ex. 1. Evaluate $19 - 3 \times 4 \div 3$

$$= 19 - 12 \div 3$$

$$= 19 - 4$$

$$= 15$$

Ex. 2. Evaluate $5[24 - 4(12 - 9) \div 6]$

$$= 5[24 - 4(3) \div 6]$$

$$= 5[24 - 12 \div 6]$$

$$= 5[24 - 2]$$

$$= 5[22]$$

$$= 110$$

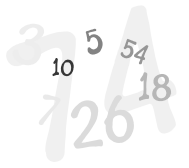


Ex. 3. Evaluate $\frac{13 + 6 \div 3}{(14 + 3) \times 2}$

$$= \frac{13 + 2}{17 \times 2}$$

$$= \frac{15}{34}$$

Exercise 4



Math 11 Unit 1
Exercise 4

Perform the indicated operation(s).

1. $13 + 5 \times 2$

8. $35 \div 7 - 2 + 4 \times 3$

2. $27 + 3 \times 7$

9. $(7 - 3) \times 4 + 3$

3. $46 - 5 \times 3$

10. $(8 - 5) \times 6 - 4$

4. $13 + 15 \div 5$

11. $4 + 2(5 - 3)$

5. $41 + 28 \div 4$

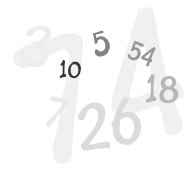
12. $-20 - 3(-2)$

6. $22 + 18 \div 3 - 6$

13. $-20 + 9 \div 3$

7. $24 \div 6 + 3 \times 4 - 8$

14. $12 + 48 \div (-8)$



15. $10 - 45 \div 3 + 4(-2)$

21. $\frac{4 \times 5}{15 \div 3}$

16. $(7 + 3) \times (-2) + 12$

22. $\frac{14 - 3 \times 2}{5 \times 3 - 11}$

17. $12 - 4(5 + 2)$

23. $\frac{11 + 12 \div 3}{20 \div 4}$

18. $[4 \times (8 - 2 \times 3) + 7] - (16 \div 2 + 6)$

24. $\frac{20(4 - 3)}{4 + 2 \times 3}$

19. $21 \div (3 + 4) + [6(8 - 3) \div (1 + 9) - 1]$

25. $\frac{5(10 - 2)}{4 + 2 \times 2}$

20. $\frac{7 \times 4}{4 + 10}$

Name: _____ Date: _____

Math 11 Unit 1
Review

A. Multiple Choice. Circle the correct answer.

1. Which of the following numbers is a whole number?

- a. $2\frac{2}{3}$
- b. $\sqrt{7}$
- c. -5
- d. 113

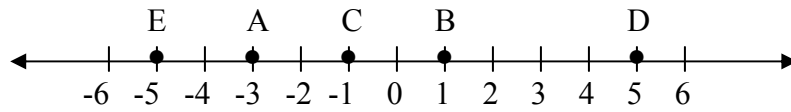
2. Which of the following is a natural number?

- a. 45
- b. -2
- c. $5\frac{1}{2}$
- d. 0

3. Which of the following is an integer?

- a. $2\frac{1}{9}$
- b. -3
- c. $1.\bar{1}$
- d. $-\sqrt{29}$

Use the following line graph to answer questions 4 – 7.



4. Which point has the value of 1?

- a. *A*
- b. *B*
- c. *C*
- d. *D*

5. Which point has the value of -1?

- a. *A*
- b. *B*
- c. *C*
- d. *D*

6. Which point has the value of -3?

- a. *A*
- b. *B*
- c. *C*
- d. *D*

7. Which point has the value of 5?

- a. *A*
- b. *B*
- c. *C*
- d. *D*



8. Simplify: $-27 + 16$

- a. -43
- b. -11
- c. 1
- d. 11

9. Find: $-25 - 12$

- a. -37
- b. -13
- c. 13
- d. 27

10. Find: $(-9)7$

- a. -63
- b. -56
- c. 63
- d. 16

11. Find: $300 \div -25$

- a. -12
- b. -6
- c. -4
- d. 8

12. Simplify: $4 \times (-2) + 3 - 6 \div (-3)$

- a. -3
- b. $-\frac{5}{3}$
- c. $\frac{2}{3}$
- d. 2



13. Find: $10 - 3(5 - 2)$

- a. -7
- b. -1
- c. 1
- d. 7

14. Find: $\frac{6 \times 2 + 8}{5 - 9}$

- a. -14
- b. -5
- c. 4
- d. 5

15. Find: $-7(3 + 2) + 15 \div 5$

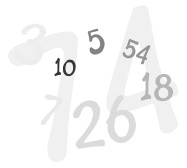
- a. -32
- b. -30
- c. 8
- d. 10

16. Simplify: $\frac{5 \times 4 + 2}{17 - 2 \times 3}$

- a. $-\frac{33}{5}$
- b. -1
- c. 4
- d. 2

17. Simplify: $3(8 - 4) + 12$

- a. 0
- b. 24
- c. 48
- d. 51



18. Find: $-3 \times 4 + 6 - 4 \div 2$

- a. -24
- b. -17
- c. -8
- d. -5

19. Find: $(26 + 4) \div (30 \div 2)$

- a. 15
- b. -1
- c. 1
- d. 2

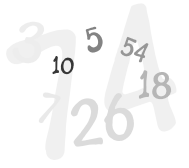
20. Simplify: $3(8 - 6) + 49 \div 7$

- a. -13
- b. 26
- c. 1
- d. 13

B. Short Answer.

21. Draw a number line and then graph the following points:

- A = 4
- B = -2
- C = 0



22. Draw a number line and then graph the following points:

$$A = 1\frac{1}{3}$$

$$B = -5$$

$$C = -\frac{1}{5}$$

23. Draw a number line and then graph the following points:

$$A > 2$$

$$B \leq -5$$

Simplify:

24. $23 + 14 + (-16) + (-18)$

25. $-21 + 6 + (-8) + 35$

26. $13 + (-11) + (-16) + 14$

27. $97 + (16 + 3) + 24$

28. $(-36 + 17) + (-4 + 23)$



29. $-[(-14) + (-87)]$

30. $11 - 26 - (-19) + (-4)$

31. $10 - 45 \div 5 + 4 \times (-7)$

32. $(7 + 3)(-2) + 13$

33. $-8 + 5(2 - 6)$

34. $[4 \times (8 - 2 \times 3) + 7] - (16 \div 2 + 6)$

35. $\frac{4(5-7)}{(6+2) \div 4}$