Whole Numbers

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| **BILLIONS** | | | **MILLIONS** | | | **THOUSANDS** | | | **ONES** | | |
| hundred billions | ten billions | billions | hundred millions | ten millions | millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones |
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**1.1 Whole Numbers** Math Symbols and Meanings

6(7) = 42 42/7 = 6

(6)(7) = 42

6 \* 7 = 42

( ) parentheses means multiplication / means division

* bullet means multiplication

\* asterisk means multiplication

Word Bank

add, altogether, decrease, difference,

divisor, double, equal, fewer, half,

how much more, increase,

less, of, per, plus, product, quotient,

same as, split up, sum, take away, times, twice, yields

**1.2 Tables, Charts, & Graphs**

1. How many coins were collected altogether from 2013 – 2019?

2. What was the difference in coins collected between 2018 & 2019?

3. During what three years, were the most coins collected?

4. Were more coins collected in 2013 & 2014 or in 2016 & 2017?

5. In 2020, double the number of coins were collected than from 2013. How many coins were collected in 2020?

**1.2 Tables, Charts, & Graphs**

6. How much money was in the bank in 2010 – 2013?

7. How much more money was in the bank in 2013 than in 2011?

8. Was more money in the bank from 2010 – 2012 or from 2014 – 2016?

9. 2010 had double the money in the bank than what year?

10. In 2017, there was triple the money in the bank than in 2014. How much money was in the bank in 2017?

**1.3 Problem Solving**

1. Sam is balancing his checkbook. To begin with, Sam has a balance of $441.89 in his checkbook. Sam has written out a check for $23.89 for his water bill and $58.23 for his cell phone bill. Sam has deposited his paycheck of $526.59. Sam has written out a check for $360.00 for rent. Sam has withdrawn $100.00 from an ATM and has been charged a fee of $2.50. What is Sam’s balance?

2. The Blue Harbor Resort has 352 visitors on Monday, 304 visitors on Tuesday, 389 visitors on Wednesday, 417 visitors on Thursday, 466 visitors on Friday, 490 visitors on Saturday, and 475 visitors on Sunday. How many people visited the Blue Harbor Resort altogether from Monday through Sunday?

3. Juan has saved $710 towards a down payment for a car. Juan has found a car to purchase for $3,050. How much more money does Juan need to buy the car?

4. Stan pays an average of $79.85 per month for electricity. How much will Stan pay in one year for electricity?

5. Stacy will use 500 gallons of propane this year and propane costs $1.29 per gallon. How much money will Stacy spend on propane for the year?

6. **Please use the information from the previous problem (#5) for this question.**

If Stacy is going on a payment plan for her propane usage for the year, what will be Stacy’s monthly payment?

7. Jamie bought three shirts for $14 each, two pants for $18 each, and a pair of shoes for $21. What was the total cost of Jamie’s shopping trip?

8. Seth drove 322 miles on a tank of gas. Seth put in 14 gallons of gas. How many miles per gallon did Seth’s car average?

9. Sarah took her family on vacation to Florida. They traveled 1,080 miles. It took them 18 hours. How many miles per hour did they average?

10. Shelly is putting a fence around her rectangular garden. If the garden measures 20 feet by 18 feet, how many feet of fencing does Shelly need to buy?

11. Forty hours is a regular workweek. Any additional hours are overtime. Devon worked 47 hours last week. He earned $10.50 for regular pay and $15.75 for overtime. How much did Devon earn last week?

**1.4 Remainders in Problem Solving**

1. Mia has a new bookshelf for her living room with 6 shelves. Each shelf holds 8 books. If Mia has 50 books, how many books will not fit on the bookshelf?

2. A farmer packs 75 apples onto trays for the market. Each tray holds 10 apples. There are 7 full trays. How many apples are in the partially filled tray?

3. Books are on sale for $7 each. Daisy has $40. How many books can she buy?

4. 32 students attend class. Each table has room for 6 students. How many tables are needed for the classroom?

5. A teacher bought 20 batteries. The teacher wants to replace the batteries in her calculators. Each calculator holds 3 batteries. How many calculators can the teacher fill with new batteries?

6. 487 students and 33 teachers are going on a field trip. The school buses have a seating capacity of 56 people per bus. How many buses need to be reserved for the field trip?

7. A farm packs 450 kilograms of strawberries per day. They pack 90 boxes with 2 kilograms of strawberries in each box, 40 boxes with 4 kilograms of strawberries in each box, and the remaining strawberries are packed in 6 kilogram boxes. How many full boxes with 6 kilograms of strawberries will the farm pack?

8. A machine produces 10,000 nails. 36 nails fit in one small box. 24 small boxes fit in one large box which is then shipped to a local hardware store. How many large boxes can be filled?

**1.5 Central Tendency: Mean, Median, Mode, & Range**

**MEAN = AVERAGE**

1. Add all of the numbers, press = for the **total** amount
2. Divide by how many numbers there are

Ex.) Test scores for a math class. 91, 95, 84, 87, 91, 88, 90, 79, 84, 91

1. 91 + 95 + 84 + 87 + 91 + 88 + 90 + 79 + 84 + 91 = 880
2. 880 ÷ 10 = **88 is the average**

**MEDIAN = middle number**

1. Order numbers **least to greatest**
2. Find the **middle** number

Ex.) Test scores for a math class. 91, 95, 84, 87, 91, 88, 90, 79, 84, 91

1. 79, 84, 84, 87, 88, 90, 91, 91, 91, 95
2. x x x x x x x x

Find the middle of 88 and 90. 88 + 90 = 178 ÷ 2 = **89 is the median**

**MODE = most often**

1. Order the numbers least to greatest
2. Find the number(s) that occur the most often

Ex.) Test scores for a math class. 91, 95, 84, 87, 91, 88, 90, 79, 84, 91

1. 79, 84, 84, 87, 88, 90, 91, 91, 91, 95 **91 is the mode**

Ex.) Water bills. $45, $54, $43, $48, $51, $47, $46

1. $43, $45, $46, $47, $48, $51, $54 **There is no mode.**

Ex.) Shoe size. 6, 8, 7.5, 9, 7, 8, 8.5, 6, 7.5, 6, 9, 7, 8

1. 6, 6, 6, 7, 7, 7.5, 7.5, 8, 8, 8, 8.5, 9, 9 **6 and 8 are the modes.**

**RANGE highest number - lowest number =** 95 - 79 = **16 is the range**

Ex.) Test scores for a math class. 91, 95, 84, 87, 91, 88, 90, 79, 84, 91

1. 88, 89, 91, 68, 44

Mean \_\_\_\_\_\_ Median \_\_\_\_\_\_ Mode \_\_\_\_\_\_ Range \_\_\_\_\_\_

2. 17, 74, 11, 96, 17, 28, 55, 62

Mean \_\_\_\_\_\_ Median \_\_\_\_\_\_ Mode \_\_\_\_\_\_ Range \_\_\_\_\_\_

3. 50, 63, 80, 70, 24, 77, 19, 80, 94, 63

Mean \_\_\_\_\_\_ Median \_\_\_\_\_\_ Mode \_\_\_\_\_\_ Range \_\_\_\_\_\_

4. 69, 80, 55, 34, 17, 92, 78, 26, 26

Mean \_\_\_\_\_\_ Median \_\_\_\_\_\_ Mode \_\_\_\_\_\_ Range \_\_\_\_\_\_

5. 93, 67, 23, 40, 74, 38, 67, 46, 52, 60

Mean \_\_\_\_\_\_ Median \_\_\_\_\_\_ Mode \_\_\_\_\_\_ Range \_\_\_\_\_\_

**PROJECT #1 Practice Problems**

1. Kue’s beginning checkbook balance is $704.93. Kue withdraws $60 from the ATM and is charged a $2.50 fee. Kue’s car payment of $186.19 is automatically withdrawn from her checking account. Kue writes out a check for $365.00 for rent. Kue deposits $593.52 from work. Kue writes out a check for $49.24 for utilities. What is Kue’s new checkbook balance?

2. Damian is decorating the bulletin board in the school’s cafeteria. The bulletin board is an

8 feet by 12 feet rectangle. He decides to add a colorful border around the bulletin board. How many feet of border does Damien need for the bulletin board?

3. JDan fills up his car with 12 gallons of gas. He had driven 258 miles. How many miles per gallon did JDan average?

**PROJECT #1 (cont.) Practice Problems**

4. Pahoua goes shopping. She purchases three Rubbermaid containers for $5.99 each, two sets of silverware for $15.99 each, one blender for $24.99, and tax for $3.75. How much does Pahoua spend shopping?

5. **Please use the information from the previous problem (#4) for this question.**

If Pahoua gives the cashier four $20 bills to pay for her purchase, how much change should Pahoua receive?

6. Diapers are on sale for $4.27 per pack. Kaneisha has $25. How many packs of diapers can Kaneisha purchase? **\*The answer is not a decimal.**

7. Jonas is moving houses and needs to pack 38 books into small boxes. He packs 9 books in each box. How many books do not fit into boxes?

**PROJECT #1 (cont.) Practice Problems**

8. Autumn bought a bag with 76 pieces of candy in it to make prize bags for her daughter’s birthday party. There will be 8 children at the party. How many pieces of candy can be placed in each prize bag? **\*The answer is not a decimal.**

9. 62 students are carpooling for a field trip. If each car holds 4 students, how many cars will be needed? **\*The answer is not a decimal.**

10. Ms. Vang orders pizzas for a class party. Each pizza will be cut into 8 pieces. There are 23 students in the class. How many pizzas should Ms. Vang order so that each person can have 2 slices? **\*The answer is not a decimal.**

**PROJECT #1 (cont.) Practice Problems**

11. A farmer packs 1000 corn on the cob into packs for the market. Each pack holds 6 corn on the cob. How many corn on the cob are in the partially filled pack?

**Use the following information to answer questions #12-15. Central Tendency**

Seven individually powered machines in a small production shop have motors using

420, 250, 855, 366, 538, 390, and 604 watts each.

12. What is the mean **(average)** wattage used in the powered machines?

13. What is the median wattage used in the powered machines?

14. What is the mode in wattage used in the powered machines?

15. What is the range of wattage used in the powered machines?

**Trades Activity #1: Finding Missing Lengths & Perimeter**

1. Find the missing length. 2. Find the perimeter of the figure.

5 cm

?

13 cm

5.5 cm

6 cm

10.5 cm

3. Find the missing length. 4. Find the perimeter of the figure.

?

5 in

2 in

18 in

13 in

2 in

**Trades Activity #1: Finding Missing Lengths & Perimeter (cont.)**

5. Find the missing length. 6. Find the perimeter of the figure.

17 mm

9 mm

? 25 mm

16 mm

8 mm

8.5 mm

7. Find the missing length. 8. Find the perimeter of the figure.

24 ft

6 ft

13 ft

16 ft

?

8 ft

**Trades Activity #1: Finding Missing Lengths & Perimeter (cont.)**

9. Find the missing length. 10. Find the perimeter of the figure.

4 yd

23 yd

?

6 yd

5 yd

10 yd

**Unit 1 Whole Numbers Review Test**

**Add.**

1. 2,239 + 443 = 2. 205,400 + 392,683 =

3. 12,586,302 + 3,990,734 =

**Subtract.**

4. 9,007 – 372 = 5. 902,745 – 23,856 =

6. 9,572,805 – 45,279 =

**Multiply.**

7. 708 \* 54 = 8. 8,091 (200) =

9. 73,192 x 823 =

**Divide.**

10. 805 ÷ 23 = 11. 868 / 14 =

12. 8,932 ÷ 203 =

**Solve. \*Know vocabulary words. See page 2.**

13. Find the ***product*** of 23 and 15. 14. Find 18 ***less*** 10.

15. Find the ***sum*** of 57 and 83. 16. Find the ***quotient*** of 84 and 12.

17. Find the **difference between** 112 and 62.

**Solve.**

18. Margaret is putting up a rectangular fence around her playground set. It measures 22 feet by 18 feet. How many feet of fencing does she need?

**Use the following homework grades to solve questions #19–22. Central Tendency**

Homework grades: 88, 98, 86, 90, 86, 92, 80, 84.

19. What is the mean **(average)** of the homework grades?

20. What is the median of the homework grades?

21. What is the mode of the homework grades?

22. What is the range of the homework grades?

23. Tammy starts with a balance of $431.73 in her checkbook. Tammy deposits her work paycheck of $495.23. She writes out a check for $250.00 for rent, a check for $22.53 for electricity, and a check for $49.38 for cable. Tammy withdraws $80.00 from an ATM machine and has to pay a $1.50 fee. What is Tammy’s ending balance in her checkbook?

24. Jean goes shopping for work clothes. He buys 4 sets of scrubs which cost $13.98 each, 2 pair of compressions socks for $21.99 each, and 1 pair of tennis shoes for $39.95. Tax for all of the items is $6.99. How much money did Jean spend on the items including tax?

25. **Please use information from the previous problem (#24).**

Jean gave the clerk (7) $20.00 bills and (1) $10.00 bill. How much change did the clerk give to Jean?

26. It takes Marsha 35 minutes to drive to work in the morning and 40 minutes to drive home in the afternoon. Marsha works 5 days a week. How many **hours** does Marsha drive to and from work each week?

*Answers*

1. 2,682 2. 598,083

3. 16,577,036

4. 8,635 5. 878,889

6. 9,527,526

7. 38,232 8. 1,618,200

9. 60,237,016

10. 35 11. 62

12. 44

13. 23 x 15 = 345 14. 18 – 10 = 8

15. 57 + 83 = 140 16. 84 ÷ 12 = 7

17. 112 – 62 = 50

18. 80

19. **Mean.**

88+98+86+90+86+92+80+84 = 704 ÷ 8 = 88 88 is the homework average.

20. **Median.**

80, 84, 86, 86, 88, 90, 92, 98 86 + 88 = 174 ÷ 2 = 87 87 is the median.

21. **Mode.**

80, 84, 86, 86, 88, 90, 92, 98 86 occurs most often. 86 is the mode.

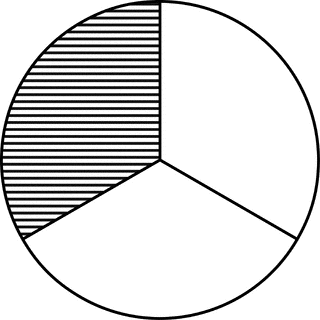
22. **Range.** Highest number – Lowest number 98 – 80 = 18 18 is the range.

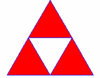
23. $523.55 24. $146.84 25. $3.16 26. 6.25 hours or 6 hours 15 minutes

Unit 2 Fractions

Write fractions that represent shaded not shaded

|  |  |  |  |  |
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Fractions

Improper fractions

Mixed Numbers

Fraction & Mixed Number Uses

**2.1 Fraction Forms**

Change the mixed number to an improper fraction

1. 3 ½ 2. 2 ¼ 3. 5 ¾

4. 1 5. 4 6. 6 7. 12

Change the improper fraction to a mixed number

8. 9. 10. 11.

12. 13. 14. 15.

**2.2 Equivalent Fractions**

**Reducing Fractions** - Can you divide the top and the bottom by 2, 3, 5, or 10? By 4, 6, 8, or 9?

1. = 2. = 3. =

4. = 5. = 6. =

**Equivalent Fractions** - - - Are the following fractions equivalent? **Yes** or **No**

7. = 8. =

9. = 10. =

**Equivalent Fractions** - - - Find the **missing number** in a proportion.

11. = 12. = 13. =

14. = 15. = 16. =

**2.3 Adding Fractions**

1. 10 2. 3. 8 4.

+ + + + 4

**2.4 Subtracting Fractions**

5. 14 6. 8 7. 6 8. 9

- 8 - - 4 - 7

**2.5 Multiplying Fractions**

9. 16 x = 10. x = 11. x x = 12. 5 x 2 =

**2.6 Dividing Fractions**

13. 10 ÷ = 14. ÷ = 15. ÷ = 16. 3 ÷ 2 =

**2.7 Exponents & Order of Operations**

Solve.

1. 2. 3. 4.

5. 6. **∙ =** 7.  **+ =**

**P – E – M – D – A – S Order of Operations**

**P** parentheses **P**lease

**E** exponents **E**xcuse

**M or D** multiply or divide, going from left to right **M**y **D**ear

**A or S** add or subtract, going from left to right **A**unt **S**ally

Solve.

8. + 8 x 5 = 9. 36 - 30 ÷ 6 =

**P – E – M – D – A – S Order of Operations**

**P** parentheses **P**lease

**E** exponents **E**xcuse

**M or D** multiply or divide, going from left to right **M**y **D**ear

**A or S** add or subtract, going from left to right **A**unt **S**ally

10. 8 x 9 + 16 ÷ 4 = 11. 24 - 18 + 4 =

12. 64 ÷ 16 x 2 = 13. 45 ÷ 5 + 6 **∙** 3

14. (10 + 8) - (2 x 6) = 15. + (56 ÷ 7) =

16. x = 17. 2 x [50 - (10 x 3)] =

18. ÷

**2.8 Problem Solving**

1. Terry is putting a fence around her garden which measures 52 feet by 28 feet. She is going to put in 2 doors; each door is 4 feet wide. Terry does not need fencing where the doors will be installed. How much fencing does Terry need for her garden?

2. Tom is installing a new door in his rec room. He needs to put molding around the door. The door measures 6 feet 9 inches tall and 3 feet 6 inches wide. How much molding does Tom need for the door? Simplify to lowest terms.

3. Amir is replacing the carpet in his living room which measures 13 feet by 15 feet. How many square feet of carpet does Amir need to re-carpet his living room?

4. Jane is going to paint her great room which measures 18 feet by 17 feet. Jane’s great room walls are 8 feet high. How many square feet of paint does Jane need to paint her living room?

5. Ron needs to cut 16 foot boards into 6 equal parts. What will one cut piece measure?

6. Shelly is going to replace the shingles on her roof. Her roof measures 40 feet by 20 feet on each side. There are 2 sides. Each bundle of shingles covers 33 square feet. How many bundles of shingles does Shelly need to purchase?

7. At work, Jeanne places 18 small boxes of nails in a large box for shipping to hardware stores. Jeanne has 3,000 small boxes.

A.) How many “full” large boxes can Jeanne pack?

B.) How many small boxes will be left over?

8. Chuck is putting in an underground fence around his yard for his dogs. His yard measures 64 feet by 120 feet. Each spool of fencing wire has 150 feet on it. How many spools of fencing wire does Chuck need to purchase?

9. Clare is saving for a down payment to purchase a car. She wants to put $2,000 down on a car. As of today, Clare has saved of the payment.

A.) How much has Clare saved so far for the down payment?

B.) How much more does Clare need to save for the down payment?

10. The population of Twin Lakes is 14,400. of the population is 18 years or older. How many people are 18 years or older?

11. Stan drove 1,128 miles this weekend. He put in 47 gallons of gas. How many miles per gallon did Stan’s car get this weekend?

12. It took Tim 21 hours to drive to Florida this weekend. Tim’s trip was 1,113 miles. How many miles per hour did Tim average driving this weekend?

* 1. **Problem Solving**

1. What is the total weight of five boxes if each box weighs 8 pounds?

2. Sarah has to run 10 miles today as she is training for a half-marathon (13.1 mile race). She has already run 7 miles. How many more miles does she have to run today?

3. Brian’s commute home from work usually takes him hour. There is a traffic jam, and it takes Brian an extra 1 hours to get home. How long did it take Brian to get home from work?

4. A tailor needs 5 yards of material to make a dress. How much material does she need to make 4 dresses?

5. An airline allows carry-on bags with a combined length plus width plus height of 37 inches. If Lynn’s carry-on bag measures 15 inches long, 9 inches wide, and 11 inches high, does his bag fit within the guideline for carry-on bags?

6. How many 1 pounds of bread can be made from 8 pounds of dough?

**PROJECT #2 Carpeting a House**

Sarah has decided to put Stainmaster Carpet **($4.15 per sq. foot)** in her house. Calculate the area of the space and then calculate the price for carpeting it.

**Use $4.15 per sq. foot for questions #1-15.**

1. How many sq. feet of carpet are needed to cover the upstairs hallway, 20 feet by 3 ½ feet?

2. How much will it cost to carpet the upstairs hallway?

3. How many sq. feet of carpet are needed to cover the downstairs hallway, 17 feet by 3 ½ feet?

4. How much will it cost to carpet the downstairs hallway?

5. There are 13 steps in the stairwell, each measuring 1 ½ feet by 3 feet. How many sq. feet of carpet are needed to cover the steps?

6. How much will it cost to carpet the steps?

**PROJECT #2 (cont.) Carpeting a House**

Living Room **Use a scale of 1 inch = 8 feet** Calculate the length & width.

W

I

D 1 in

T

H

3 in

LENGTH

7. How many sq. feet of carpet are needed to cover the living room?

8. How much will it cost to carpet the living room?

**PROJECT #2 (cont.) Carpeting a House**

Bedroom A **Use a scale of 1 inch = 8 feet** Calculate the length & width.

W

I  
D 1 in  
T  
H

2 in

LENGTH

9. How many sq. feet of carpet are needed to cover Bedroom A?

10. How much will it cost to carpet Bedroom A?

**PROJECT #2 (cont.) Carpeting a House**

Bedroom B **Use a scale of 1 inch = 8 feet** Calculate the length & width.

W

I  
D 1 in  
T  
H 1 in

LENGTH

11. How many sq. feet of carpet are needed to cover Bedroom B?

12. How much will it cost to carpet Bedroom B?

**PROJECT #2 (cont.) Carpeting a House**

Bedroom C **Use a scale of 1 inch = 8 feet**  Calculate the length & width.

W

I  
D 1 in  
T  
H 1 in

LENGTH

13. How many sq. feet of carpet are needed to cover Bedroom C?

14. How much will it cost to carpet Bedroom C?

**PROJECT #2 (cont.) Carpeting a House**

Complete the chart to help answer #15.

|  |  |  |
| --- | --- | --- |
| Room/Area | Sq. Footage/Area | Cost to Carpet This Room/Area |
| Upstairs Hallway | 1. | 2. |
| Downstairs Hallway | 3. | 4. |
| Steps | 5. | 6. |
| Living Room | 7. | 8. |
| Bedroom A | 9. | 10. |
| Bedroom B | 11. | 12. |
| Bedroom C | 13. | 14. |
| Total |  | 15. |

15. How much will it cost to carpet all of the rooms? $

**Trades Activity #2: Finding Missing Lengths & Area**

1. Find the missing length. 2. Find the area of the figure.

7 cm

16 cm

?

7.5 cm

8 cm

14.5 cm

3. Find the missing length. 4. Find the area of the figure.

3 in

4 in

?

15 in

11 in

1.5 in

**Trades Activity #2: Finding Missing Lengths & Area (cont.)**

5. Find the missing length. 6. Find the area of the figure.

8 mm

3.5 mm

7.5 mm

?

4 mm

3 mm

7. Find the missing length. 8. Find the area of the figure.

36 ft

?

40 ft 19 ft

28 ft

17 ft

**Trades Activity #2: Finding Missing Lengths & Area (cont.)**

9. Find the missing length. 10. Find the area of the figure.

10 yd

40 yd

55 yd

12 yd

15 yd

?

**Unit 2 Fractions Review Test**

Write the fraction in simplest form. (Reduce)

1. 2.

3. 4.

Determine whether the pair of fractions is equivalent. Answer **yes** or **no.**

5. and 6. and

Find the missing number.

7. = 8. =

Solve. Write the answer in simplest form. (Reduce)

9. + = 10. 14 + 10 =

11. + = 12. 11 + =

13. - = 14. 18 - 15 =

15. - 8 = 16. 14 - =

17. x x = 18. 3 x 4 =

19. x = 20. x =

21. 15 ÷ 2 = 22. 5 ÷ =

23. ÷ = 24. ÷ =

Solve. Exponents & Order of Operations

25. 8³ + 4² = 26. 4² - 2³ = 27. 36 - 10 x 2 =

28. 14 ÷ 2 + 9 x 2 = 29. (18 - 9)² + 4 x 3 = 30. (12 + 3) + 14 ÷ 2 =

Answers

1. 1/3 2. 4/11 3. 5/6 4. 3/19 5. no

6. yes 7. 15 8. 147 9. 1 5/8 10. 25 5/12

11. 5 1/6 12. 14 2/5 13. 7/18 14. 2 11/15 15. 7 2/5

16. 2 9/16 17. 3/32 18. 13 1/3 19. 4 6/7 20. 6 11/32

21. 6 22. 6 23. 95/104 24. 7/54 25. 528

26. 8 27. 16 28. 25 29. 93 30. 22

Whole Numbers and -ths

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BILLIONS** | | | **MILLIONS** | | | **THOUSANDS** | | | **ONES** | | | **.** | **DECIMALS** | | | | | |
| hundred billions | ten billions | billions | hundred millions | ten millions | millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones |  | tenths | hundredths | thousandths | ten-thousandths | hundred-thousandths | millionths |
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**3.1 Place Value**

Write the following numbers in words.

1. 582 2. 923,930 3. 15,870,235

4. 0.37 5. 12.408 6. 391.8128

Write the following words in standard form (as numbers).

7. six hundred fifty-seven

8. three hundred forty-five thousand, nineteen

9. one thousand, two hundred eighty-nine and four tenths

10. seventeen and eight hundredths

11. forty-one thousandths

12. seven hundred ninety-three thousandths

13. six thousand, four hundred thirteen ten-thousandths

14. nine thousand, five hundred ten-thousandths

**3.1 Rounding**

Round each number to the nearest **ten**.

15. 59 16. 482 17. 5,098

Round each number to the nearest **hundred**.

18. 293 19. 6,825 20. 34,479

Round each number to the nearest **thousand**.

21. 8,384 22. 49,523 23. 302,239

Round each number to the nearest **ten thousand**.

24. 14,999 25. 367,730 26. 509,142

Round each number to the nearest **ones** or **whole number**.

27. 137.34 28. 45.825 29. 0.948

Round each number to the nearest ten**ths**. 1 decimal place

30. 0.94 31. 0.414 32. 19.9938

Round each number to the nearest hundred**ths.** 2 decimal places

33. 0.13829 34. 0.9015 35. 235.9323

Round each number to the nearest thousand**ths**. 3 decimal places

36. 0.023805 37. 0.78035 38. 0.000399

**3.2 Adding & Subtracting Decimals**

1. 14 + 0.031 = 2. 170.04 + 18 =

3. 87 + 13.047 + 0.0729 = 4. 3.03 + 71 + 0.774 =

5. 39 - 16.037 = 6. 395.01 - 106 =

7. 749.8 - 0.749 = 8. 300.65 - 140.4 =

9. 1000 - 284.56 = 10. 10,348.82 - 3,657.832 =

**3.3 Multiplying Decimals**

1. 23. 1 x 6.8 = 2. 14 x 99.3 =

3. 3.091 x 100 = 4. 1.597 x 0.24 =

5. 0.75 x 32 = 6. $14.95 x 7 =

7. $2.34 x 15.9 = 8. 180 x 0.0084 =

**3.4 Dividing Decimals**

**Round to the nearest hundredths.**

9. 348.08 ÷ 8 = 10. 22.96 ÷ 1.2 =

11. 18 ÷ 0.03 = 12. 15.5 ÷ 0.15 =

13. 1.984 0.16 = 14. 0. 394 ÷ 0.4 =

15. 39.94 ÷ 10 = 16. 4.24 ÷ 0.72 =

**3.5 Decimal to Fraction**

Convert each decimal to a ***fraction*** or ***mixed number***. Write the answer in simplest form.

**(Reduce)**

**Read aloud.**

1. 0.4

2. 0.61

3. 0.655

4. 79.8

5. 0.56

6. 2.49

7. 1.05

8. 24.06

9. 6.412

10. 0.7

**3.5 Fraction to Decimal**

Write each fraction or mixed number as a ***decimal***. Draw a line above repeating numbers in decimals. **top number ÷ bottom number**

1. 2.

3. 4.

5. 6.

7. 8.

9. 3 10. 7

11. 12 12. 31

**3.6 Decimals Problem Solving**

1. Your family went out to eat. The bill for the meal was $42.40. If you give the waiter $50.00, what is your change?

2. Which is a better deal: 3 boxes of cereal for $8.97 or 5 boxes of cereal for $11.65?

3. You set up a payment plan with Aurora for doctor/hospital bills. Your doctor/hospital bill is $1,618.68. You plan to pay off your bill in one year. How much is your monthly payment?

4. Leah went shopping. She bought 3 shirts for $14.98 each, 2 pants for $17.99 each, 1 jacket for $31.25, and 6 pair of socks for $1.97 each. How much did she spend (before tax)?

5. James earns $9.27 per hour at his job. If James worked 31.25 hours last week, how much did he earn before taxes were taken out, gross wage?

6. **See the previous problem (#5).** What was James net wage after $4.20 was taken out for Medicare, $17.96 was taken out for Social Security, and $7.82 was taken out for state tax?

7. Penny is planning a wedding. Penny orders 225 invitations. The total cost of the invitations is $345.50. How much does each invitation cost?

8. Each meal at the wedding will cost $9.95. How much money needs to be budgeted for the meal if 110 guests will be attending?

9. David is planning a trip. He will be driving 920 miles in 15.5 hours. How many miles per hour will he average on his trip?

10. During his trip, David will be walking in a Relay for Life. If his team walks a total of 18.75 miles in 6.5 hours, what is the team’s average in miles per hour?

11. David is also planning to help Debbie paint her house. David paints for 16.25 hours. Debbie pays David $200 for his help. How much did David average per hour painting?

12. Esmerelda worked 52 hours last week. Her regular rate of pay is $10.58 per hour. Her overtime rate of pay is $15.87. How much did Esmerelda earn last week?

13. Jackson is replacing the hardwood floor in his living room. His living room measures 15 feet by 13.75 feet. What is the area of his living room?

14. Jackson is replacing the trim in his living room. His living room measures 15 feet by 13.75 feet. How much trim will Jackson need to purchase?

15.) Jennifer needs to balance her checkbook. Jennifer has a starting balance of $265.31. Jennifer writes out a check for $23.74 and another check for $86.02. Then, she deposits $634.02 into her checking account. Then, Jennifer withdraws $200 from her checking account at an ATM, and her bank charges her $1.50 which is withdrawn from her checking account. What is Jennifer’s ending balance?

16. Jennifer is running a 55 mile relay race with 6 of her friends. Runner 1 will run 8.25 miles, Runner 2 will run 9 miles, Runner 3 will run 8.75 miles, Runner 4 will run 9.5 miles, and Runner 5 will run 9.75 miles. Jennifer is Runner 6. How many miles will Jennifer run?

**3.7 Tables, Charts, Graphs \*See pages 15 & 16 in this workbook.**

Use the following information for #1 – 4. **Central Tendency**

Larry scored a 95, 91, 87, 88, 90, 88, 98, 91, 88, and 95 on his math quizzes.

1. What is Larry’s average on his math quizzes? 1.

2. What is the median for Larry’s math quizzes? 2.

3. What is the mode for Larry’s math quizzes? 3.

4. What is the range for Larry’s math quizzes? 4.

Use the following information for #5 – 8. **Central Tendency**

Tracy is comparing cell phone companies. She would get the same phone and plan.

This is a history of estimated bills for 6 months.

Company A: $189.76, $39.07, $44.29, $39.07, $44.29, $39.07

Company B: $61.89, $61.89, $66.24, $61.89, $66.24, $61.89

Company C: $60.70, $60.70, $67.17, $60.70, $67.17, $60.70

5. What is Company A’s average bill? 5.

6. What is Company B’s average bill? 6.

7. What is Company C’s average bill? 7.

8. What is the median of Company A? 8.

9. What is the mode of Company B? 9.

10. What is the range of Company C? 10.

Use the following information for #11 – 15. **Central Tendency**

|  |  |
| --- | --- |
| Night at the Museum | $200,000,000 |
| Pirates of the Caribbean: Dead Man’s Chest | $250,000,000 |
| Superman Returns | $375,000,000 |
| X-Men, The Last Stand | $200,000,000 |

11. How much more money did Superman Returns 11.

make than X-Men, The Last Stand?

12. What is the mode for the top grossing movies of 2006? 12.

13. What is the median for the top grossing movies of 2006? 13.

14. What is the mean for the top grossing movies of 2006? 14.

15. How many movies have a higher amount than the mean? 15.

**Area Formulas for Trades Activity #3**

Area of a Square side x side

Area of a Rectangle length x width

Area of a Triangle base x height ÷ 2 **OR** ½ x base x height

radius diameter

Area of a Circle 3.14 x radius x radius

Area of a Half Circle ½ x 3.14 x radius x radius

**Trades Activity #3: Area**

Find the **area** of the following figures. Round answers to the nearest **hundredths.**

1. 10.375 in 2.

10.375 in 15 cm 13 cm

1. cm

3. 4.

7.75 ft 8.5 yd

**Trades Activity #3: Area (cont.)**

Find the **area** of the following figures. Round answers to the nearest **hundredths.**

5. 6.

9 mm 14.8 in

6 mm

8.5 mm

7. 75.125 cm 8. 2.94 ft

18 cm 2.94 ft

**Trades Activity #3: Area (cont.)**

Find the **area** of the following figures. Round answers to the nearest **hundredths.**

20 mm

9. 10. 21.5 in

16.5 in

**Unit 3 Decimals Review Test**

Write the following numbers in words.

1. 203.56

2. 0.8609

3. 0.014

Write the following numbers in standard form (numbers).

4. fifty-eight thousand, nine hundred three

5. forty-two and four hundredths

6. one thousand, six hundred seventy-nine ten-thousandths

Round the following numbers to the indicated place value.

7. 19,370 (thousands)

8. 759 (tens)

9. 50.95 (tenths)

10. 0.1234 (hundredths)

Write the decimal as a ***fraction*** or ***mixed number*** in simplest form. **Reduce.**

11. 0.90 12. 23.6

Write the fraction or mixed number as a ***decimal***.

13. 3 14.

Perform the indicated operations.

15. 32.897 + 5.86 + 0.279 = 16. 147.798 + 52 + 13.0075 =

17. $87.23 + $0.95 + $100.34 =

18. 75.58 - 3.9 = 19. 487.58 - 3.234 =

20. $140.23 - $13.07 =

21. 12.55 x 0.72 22. 0.93(5.45)

23. 12.97 **∙** 100 =

24. 12.495 ÷ 0.15 25. 75 ÷ 2.5 =

26. 700.005 ÷ 100 =

27. (28 + 0.48) - (14 ÷ 0.5) = 28. (0.73 - 0.05) x (10.57 - 5) =

Answers

1. two hundred three and fifty-six hundredths

2. eight thousand, six hundred nine ten thousandths

3. fourteen thousandths

4. 58,903 5. 42.04

6. 0.1679 or .1679 7. 19,000

8. 760 9. 51.0

10. 0.12 or .12 11.

12. 23 13. 3.75

14. 0.625 or .625

15. 39.036

16. 212.8055 17. $188.52

18. 71.68 19. 484.346

20. $127.16 21. 9.036

22. 5.0685 23. 1,297

24. 83.3 25. 30

26. 7.00005 27. .48 or 0.48

28. 3.7876

**4.1 Ratios**

Write the following ratios in ***lowest terms*** as a fraction, to, and : (colon).

**\*Improper fractions stay improper – do not turn into a mixed number.**

f**raction to :**

1. 16 to 6 = 8 to 3 8 : 3

2. 15:10

3.

4. 14:20

5.

6. 20 to 10

**4.1 Proportions**

Find the missing number in the following proportions.

**\*Multiply diagonally. Divide by remaining number.**

1. 2.

3. 4.

**4.1 Ratios and Proportions --- Problem Solving**

5. In an office cabinet, the ratio of pencils to pens is 9 to 10. If there are a total of 117 pencils, find the number of pens in the office cabinet.

6. The ratio of memberships for males to females is 3 to 2 at the fitness center. If there are a total of 474 males that belong to the fitness center, find the number of females that belong.

7. The ratio of neutrons in the nucleus of atom A to atom B is 6 to 7. If there are 63 neutrons in the nucleus of atom B, find the number of neutrons in the nucleus of atom A.

8. In 2 hours it snowed 7.5 inches. How much snow would fall over a period of 8 hours if the snow continued at this rate?

9. Kevin ran 9.75 miles in 2 hours. If he continues running at the same pace, how far will he run in 4.5 hours? **\*Round to the nearest mile.**

10. If 2 pounds of chicken cost $7.99, how much should 3.5 pounds of chicken cost?

11. Tommy and Tara traveled 344 miles in 7 hours. If they continue traveling at the same rate, how long will it take them to travel 516 miles?

12. Donna used 18 inches of tape to wrap 8 presents. How many presents did Donna wrap if she used 27 inches of tape?

**4.2 – 4.4** Change each fraction or mixed number to a ***decimal***.

**top number ÷ bottom number**

1. 2.

3. 4.

5. 6.

7. 8 8. 14

9. 10 10. 6

11. 23 12. 61

**4.2 – 4.4** Change each decimal to a ***fraction*** *or* ***mixed number*** and reduce to lowest terms.

**Read the number aloud and WRITE it**

1. 0.8 2. 0.35

3. 0.04 4. 0.125

5. 0.79 6. 0.22

7. 25.03 8. 18.46

9. 20.055 10. 1.7

11. 76.25 12. 61.134

**4.2 – 4.4** Change each decimal to a ***percent***. **X 100**

1. 0.13 2. 0.59

3. 0.08 4. 0.098

5. 0.4 6. 0.0032

7. 3.87 8. 15.6

9. 5 10. 27

Change each percent to a ***decimal***. **÷ 100**

11. 41 % 12. 78 %

13. 5 % 14. 2.5 %

15. 342 % 16. 0.16 %

17. 1640 % 18. 600 %

19. 50 % 20. 0.9 %

**4.2 – 4.4** Change each fraction or mixed number to a ***percent***.

**fraction** or **to decimal to percent**

**mixed number**

1. 2 ÷ 5 = 0.4 **X 100** 40 %

2.

3.

4.

5.

6.

7.

8. 9

9. 74

10. 98

**4.2 – 4.4** Change each percent to a ***fraction or mixed number*** and reduce to lowest terms.

**percent to decimal to fraction or mixed number**

1. 6 % **÷ 100** 0.06 read aloud & write =

2. 25 %

3. 104 %

4. 335 %

5. 0.2 %

6. 9.5 %

7. 36.8%

8. 17%

9. 0.8%

10. 256%

11. 150%

12. 0.04

**Unit 4.2, 4.3, 4.4** Fractions to Decimals to Percents

Write as a percent.

Write 3.45 as a percent.

Write 18% as a fraction.

Write 1.64 as a mixed number.

Write 375% as a decimal.

Write 1.41% as a decimal.

Write as a decimal.

Write 8 as a percent.

Write 3.2% as a fraction.

Write 51 as a decimal.

**4.5 Box Method**

What is 20% of 350?

20 goes in % top right corner

350 goes in of bottom left corner

100 goes in bottom right corner

is % ? 20

of 100 350 100

**Multiply diagonally 350 x 20 = 7000**

**Divide remaining number 7000 ÷ 100 = 70**

**What is 20% of 350?**

**70**

**4.5 Box Method**

is %

of 100

1. 20% of 12 =

2. 30% of 80 =

3. 16% of 85 =

4. 17% of 65 =

5. 45% of 50 =

**4.5 Box Method**

is %

of 100

6. % of 25 = 15

7. % of 40 = 10

8. % of 48 = 8 Round to hundredths

9. % of 65 = 33 Round to tenths

10. % of 9 = 4 Round to tenths

**4.5 Box Method**

is %

of 100

11. 34% of = 34

12. 67% of = 80 Round to tenths

13. 20% of = 75

14. 45% of = 120 Round to hundredths

15. 12% of = 76 Round to hundredths

**4.6 Problem Solving**  #1

part %

whole 100

total

1. Many financial planners recommend that you save to 15% of your income for retirement starting in your 20s. If you make $28,000.00 per year, how much money will you save for retirement in a year?
2. Bitter Neumann Appliance recently mailed 8,000 sales flyers with possible winning prize numbers to past shoppers in Sheboygan and Manitowoc County. 14.5% of the customers that received the letter came to see if they were prize winners. How many customers attended the sales event?

**4.6 Problem Solving cont.**

part %

whole 100

total

1. The Federal Insurance Contributions Act (FICA) is the federal law that requires employers to withhold two separate taxes from the wages employees are paid. FICA is comprised of
   1. 6.2% Social Security tax
   2. 1.45% Medicare tax

Mark’s paycheck for working 80 hours is $1,200.

1. How much money is deducted for Social Security tax?
2. How much money is deducted for Medicare tax?
3. Amanda is making cat toys for the Sheboygan County Humane Society. She has made 20 cat toys already. This is 8% of her goal. How many cat toys is she planning to make?

**4.6 Problem Solving cont.**

part %

whole 100

total

1. Socheat’s cat weighed 35 pounds. The vet advised that the cat be put on a diet. The cat’s food was reduced and more exercise was encouraged. The cat lost 7 pounds in one year. What percent of weight did the cat lose?
2. Our Lady of Guadalupe Mission is preparing for Cinco de Mayo Fiesta. The parish has 875 members. Last year’s Fiesta had 60% of the parish members attend. If about the same amount attend this year, how many members will be attending the celebration? Round to the nearest ones or units place.

**4.6 Problem Solving cont.**

part %

whole 100

total

1. The average family of four is expected to pay $9,144 a year in health insurance premiums and out-of-pocket expenses. 22% of a family’s income is withheld for insurance premiums. What is the family’s yearly income?
2. Sandy took a science test.  The test had 35 problems.  She got 6 wrong.  What percentage correct did she score? Round to the nearest percentage.

**4.6 Problem Solving cont.**

part %

whole 100

total

1. Joe was absent from work 12 days out of the 20 days that she was scheduled to work. What percent of days was Joe absent?

1. Joe was absent from work 12 days out of the 20 days that she was scheduled to work. What percent of days was Joe present?

**4.6 Problem Solving cont.**

part %

whole 100

total

1. To avoid paying private mortgage insurance (PMI), home buyers need to put 20% down on a home purchase. Beth would like to purchase a home listed at $145,000.
   1. How much money does Beth need to save to put 20% down on the home purchase?
   2. Beth has saved $23,000 already. How much more does she still need to save?

**4.6 Problem Solving cont.**

part %

whole 100

total

1. Sheng’s daughter wants a new dress for the prom. The regular price of the dress is $120.  The dress is on sale for 30% off the regular price.

* 1. What is the amount of the discount for the dress?
  2. What is the sale price for the dress?
  3. Sales tax is 5%. How much is the sales tax for the dress (sale price)?
  4. What is the sale price with tax for the dress?

**4.6 Problem Solving cont.**

amount of

increase or decrease %

original amount 100

1. Gas was $1.98 per gallon last week. Today it is $2.15 per gallon. What is the percent of increase for a gallon of gas? Round to the nearest tenth.
2. The enrollment at a university increased from 14,000 students to 16,000 students over a period of 5 years. What is the percent of increase in enrollment? Round to the nearest unit or whole.
3. The selling price of a home was decreased from $175,000.000 to $145,000.00. What is the percent of decrease in the selling price of the home? Round to the nearest unit.

**4.7 Tables, Charts, Graphs**

Piper tracked the time she spent of homework per topic. **Time Spent on Homework**

1. What percentage of time did Piper spend on 24% 12%

the art and English homework? Spanish Bio. 13%

Health

2. Combined, which two topics required the 11%

greatest amount of time? 26% Art

History English

3. Was the biology and history work or the

Spanish and health work longer?

4. Between biology and art, which topic

took longer?

5. If Piper spent 300 minutes on homework,

how many minutes did she spend on health?

A local comic book store tracked fans’ favorite superheroes by having them vote.

6. Which super hero is more popular, **Favorite Super Hero**

Gamora or Deadpool?

13%

7. What percent of fans voted for Storm Deadpool

Storm or Robin? 12% Robin

Thor

8. If 200 fans voted, how many voted 10% 15% 28%

for Thor? Batgirl Gamora

9. Who was chosen more: Batgirl and Robin or

Thor and Storm?

10. How many super heroes received more votes than Robin?

**4.7 Tables, Charts, & Graphs** **Blackboard Assignment**

**Enter your answers** **in Blackboard** (multiple choice)**.**

**Percentage of Social Platform Users**

1. What percent of people use Twitter?

2. Which social media platform is more popular:

Twitter or Linked In? Facebook Instagram

40% 25%

3. Combined, which two platforms have the highest

number of users? Snapchat

14%

4. If 10,000 people were on social media platforms, 10% ?

how many people would be on Snapchat?

Linked In Twitter

5. Do more people use: Facebook & Twitter or

Instagram, Snapchat, & Linked In?

**Favorite Baseball Teams**

6. What percentage of people chose the Angels or Reds?

7. What percentage of people chose the Cubs? Cubs Yankees

15% 23%

8. Which team was the least popular? Rangers

14%

9. Which two teams account for **half** of the picks? Reds

Angels 27%

10. How many teams are more popular than the Rangers? ? 8%

Brewers

**Area Formulas for Trades Activity #4**

Area of a Square side x side

Area of a Rectangle length x width

Area of a Triangle base x height ÷ 2 **OR** ½ x base x height

radius diameter

Area of a Circle 3.14 x radius x radius

Area of a Half Circle ½ x 3.14 x radius x radius

Area of a ¾ Circle ¾ x 3.14 x radius x radius

**Trades Activity #4: Find the Area of the Shaded Region**

3 m

1. 6 ft 2.

6 ft **5 ft**

6 m 11 m

6 m

3. 4. 7 cm

4 yd **6 cm**

**Trades Activity #4: Find the Area of the Shaded Region (cont.)**

5. 6. 13 in

**4 m**

10 in 12 in

6 m 11 in

8 m

Outside or bigger circle has a 17 m radius.

7. Inside or smaller circle has a 5 m radius.

**17 m**

**5 m**

**Trades Activity #4: Find the Area of the Shaded Region (cont.)**

8.

15 cm

**11 cm**

**13 cm**

18 cm

Outside or bigger circle has a 24 yd diameter.

10 yd Inside or smaller circle has a 12 yd diameter.

9. **3 yd** 4 yd 10.

**3 yd**

**6 yd** **12 yd 6 yd**

**Unit 4 Rate, Proportion, Percent Review Test**

Express each ratio as a ***fraction*** in lowest terms.

1. 10 to 45

2. 36:14

3. 21 to 7

Write each fraction, mixed number, or decimal as a ***percent.***

4. 0.3

5.

6. 1

Write each percent or decimal as a **fraction** or **mixed number**. Reduce to lowest terms.

7. 2.34

8. 5%

Write each fraction, mixed number, or percent as a ***decimal***.

9.

10. 1

Solve each percent equation. Use the box method. is %

11. 30% of ? is 27 of 100

12. ? % of 84 is 21

13. 75% of 48 is ?

Solve each problem using order of operations.

14. 4 + 3 x [7 x (12 ÷ 4)] =

15. [(12 + 18) - 3² x 2 ] =

Solve the following story problems.

16. If 4 pounds of apples cost $3.25, what should 6 pounds of apples cost?

17. A football team won 16 out of 20 games. What percent of games did the team win?

18. The regular price of a jacket is $49.00. There is a 20% discount.

a. Find the amount of the discount.

b. Find the new amount of the jacket by applying the discount.

19. A baby weighed 9.5 pounds at 1 month and 17 pounds at 6 months. What was the percent of increase? Round your answer to the nearest whole number (ones place).

20. Last week Walmart was selling lawn chairs for $22.00. This week the chairs are on sale for $17.25. What is the percent of decrease in price? Round your answer to the nearest tenths.

Answers

1) 2/9 2) 18/7

3) 3/1 4) 30%

5) 35% 6) 108%

7) 2 17/50 8) 1/20

9) 0.375 10) 1.8

11) 90 12) 25%

13) 36 14) 67

15) 12 16) $4.88

17) 80% 18) $9.80 discount, $39.20 new amount

or discounted price

19) 79% 20) 21.6%

**5.1 Multiplying & Dividing Integers**

Use SAME rules for multiplying & dividing

positive x positive = positive positive x negative = negative

positive ÷ positive = positive positive ÷ negative = negative

negative x negative = positive negative x positive = negative

negative ÷ negative = positive negative ÷ positive = negative

1. -5(31) = 2. (24)(-13) = 3. (-8) \* (3) \* (-10) =

4. (-2)(-4)(-11) = 5. (-20)(-7) = 6. -75 ÷ -5 =

7. -96 ÷ -4 = 8. 42 ÷ -6 = 9. =

10. = 11. = 12. =

**5.2 Adding & Subtracting Integers**

RULES for addition

**negative** + **negative** = ADD, keep negative **positive** + **negative** or **negative** + **positive**

different signs = find difference (subtract),

take higher sign

1. -23 + (-17) = 2. 47 + (-20) = 3. -6 + 19 =

4. -75 + 55 = 5. 34 + (-8) = 6. -73 + (-24) =

RULES for subtraction

minus means take away minus negative means take away a debt

(subtract), take higher sign **change, change**

7. 74 - 97 = 8. -26 - (-62) = 9. -53 - 14 =

10. 41 - (-24) = 11. -83 - (-18) = 12. 16 - (-38) =

**5.3 Order of Operations with Positive & Negative Numbers: Integers**

Simplify.

1. (-3)² = 2. -8³ = 3. (-6)³ =

4. -(-5)² = 5. -() = 6. () =

7. 15 + 6 x (-5) = 8. -3 x (-6) – (-9) = 9. -12 - 25 ÷ 5 =

10. 5² - (-3)³ = 11. 42 - (-10) x (4) = 12. 11 – (-6)² =

13. 8 – 4 + 24 ÷ (-4) = 14. ( 8 – 12)² ÷ 8 – 16 =

15. 4 × 3 x [-5 – (-6)] = 16. (2 + 13)² + (-8) x 6 =

**5.4 Problem Solving**

1. During a football game, the Packers pushed the Bears back 5 yards on the first play and 10 yards on the second play. How many total yards did the Bears lose in the two plays?
2. A heavy equipment operator is excavating an area to install concrete bridge supports. The operator digs to a depth of 13 feet and stops to measure. Then 6 more feet of soil are removed. The operator stops to refuel the equipment. When she returns, she excavates 4 more feet. What is the depth of the area excavated?
3. Amanda has $263 in her checking account.  She withdraws $60 from an ATM. She writes a check for $280 and a check for $233. Then, she deposits $199.  What is Amanda’s new balance in her checking account?
4. Beth and her friends are going sky diving. The airplane ascends to a height of 12,000 feet AGL (above ground level). The group jumped and the parachutes opened at 3,400 feet AGL. How many feet did the jumpers free fall before the parachutes opened?
5. **Mt. Everest, the highest elevation in Asia, is 29,028 feet above sea level. The Dead Sea, the lowest elevation, is 1,312 feet below sea level. What is the difference between these two elevations?**
6. **In Phillips, Wisconsin, the temperature was -11°F in the morning. If the temperature dropped 9°F, what is the temperature now?**
7. **A submarine was situated 750 feet below sea level. If it ascends 250 feet, what is its new position?**
8. At sunrise, the outside temperature was 1° below zero. By lunch time, the temperature rose by 17° and then fell by 4° by night. What was the temperature at the end of the day?
9. Sue was told that she needed to go on a diet or she would need to start taking high blood pressure medication. She started at 179 pounds. Over 6 months, she lost 4.1 pounds, 2.2 pounds, 4.5 pounds and 3.9 pounds. She also gained 6.3 pounds. Her ideal weight is 145 pounds. How many pounds does she still need to lose?
10. A submarine deploys at 0 feet. The sub descends to a depth of 1,600 feet. It ascends 700 feet and then descends 300 feet. How many feet must it ascend to reach the water surface?
11. In Detroit the high temperatures in degrees Fahrenheit for five days in January were 12°, -8°, -3°, 6°, -15°. What was the average temperature for these five days?

12. A deep sea exploring ship is pulling up a diver at the rate of 25 feet per minute. A diver is 200 feet below sea level. How deep was the diver 10 minutes ago?

1. Sandra and Jonathon are scuba diving. Sandra dives to 27 feet below sea level. Jonathon is 9 feet above Sandra. How far below sea level is Jonathon?
2. The low temperature for 5 days in northern Wisconsin was recorded as follows: Monday was -8˚F, Tuesday was 0˚F, Wednesday was -3 ˚F, Thursday was 5 ˚F, and Friday was 13˚F. Which day’s low temperature was 8˚F colder than the low temperature on Thursday?
3. Mount Mitchell is 6,684 feet above sea level. Lake James is 1,200 feet above sea level. What is the difference in feet between Mount Mitchell and Lake James?
4. Death Valley is 282 feet below sea level. Mount Whitney is 14,505 feet above sea level. What is the difference in feet between Death Valley and Mount Whitney?

**Unit 5.5 Tables, Graphs, Charts**

Use the following pictograph to answer questions 1 - 4.

Annual Milk Production in the U.S. ( = 5 billion pounds)

Wisconsin

California

Idaho

Michigan

New York

Pennsylvania

Texas

1. Which state produces the most milk?
2. Approximately, how many more pounds of milk does Wisconsin produce than Michigan in a year?
3. Which 2 states together produce about the same amount of milk as Wisconsin?
4. **True or False:** The top 2 producing states together produce more milk than the other 5 states together?

Source: Statistics

**Unit 5.5 Tables, Graphs, Charts**

Use the following bar graph to answer questions 5 - 8.

1. Which state has the fewest tornadoes per year?
2. How many more tornadoes do the 3 states with the most tornadoes have than the 3 states with the least?
3. Illinois has more than triple the number of tornadoes than which state?
4. **True or False:** Together, Wisconsin, Indiana, and Ohio have more tornadoes per year than Illinois and Michigan.

Source: US Tornadoes

Use the following histogram to answer questions 9 – 12.

Percentage of People Who Vote in the U.S.

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100%

90%

80%

70%

60%

50%

40%

30%

20%

10%

18-29 30-44 45-60 60+

Age

1. What percentage of people between the ages of 18-29 vote?

1. What is the difference in percentage between the group with highest percentage of voters and the group with the lowest percentage?
2. What is the difference in percentage between the voters in the age group 30-44 and the voters in the age group 45-60?
3. What is the ratio of adults between the ages of 18-29 who vote to the number of adults between the ages of 60 + who vote?

**Reduce to lowest terms.**

**Write your answer in the ratio form to**

Source: U.S. Elections Project

**Unit 5.5 Tables, Graphs, Charts**

Use the following line graph to answer questions 13 – 15.

1. What is the difference between the high temperature in July and January?
2. What is the median of the high temperatures in Cleveland?
3. What is the average high temperature for June, July, and August?

**Round to the nearest whole number.**

Source: The Weather Channel

**Unit 5 Integers Review Test**

Solve.

1. -14 (2.8) = 2. -84/3 = 3. 24 + (-12) = 4. 0 - (-18) =

5. -3.5 6. -17 + (-36) = 7. 79 - 94 = 8. -1.23 (-4.56) =

-0.5

9. -15 - (-67) = 10. 0 11. 7 12. -27 + 16 = -4 0

13. 90 (- 18) = 14. 15 (25) = 15. -75 - 28 = 16. 103 - 53 =

17. 45 + (-90) = 18. -117 + 7 = 19. -14 + 18 = 20. 42 - 58 =

21. 24 + (-64) ÷ 16 = 22. 32 - 25 ÷ (-5) = 23. (3 + 2)³ - (4 - 8)² =

24. Find the quotient of -16 and 8.

25. Find the sum of -3, 17, and -25.

26. Find the product of -12 and -45.

27. Find the difference of 10 and -49.

28. Sarah works as a cashier at Kohl’s. At the beginning of her shift, she has $350.00 in her drawer. During the first hour of work, she has 8 transactions. Purchases of $ 117.24, $ 42.05, and $ 183.03 were made. Then, a return for $167.93 was made. Next, purchases of $62.94 and $105.36 were made. Then a return of $23.46 was made. Finally, a purchase of $35.69 was made. What is the ending balance of Sarah’s drawer after the first hour of work?

29. My cable bill was $145.67. I was only able to pay $80. Now I have a late fee of $9.95 added onto the bill. What is the balance due on the bill?

30. At my last doctor’s visit, the bill was made up of the following charges: $197.00, $31.50, $239.00, and $67.24. My insurance paid $389.26. What is the remaining balance on this bill?

31. Eddy Lacy ran for 7 rushes. Here are the rushes: 3 yds, 1.5 yds, a loss of 2.5 yds, 6 yds, a loss of 4 yds, 10.5 yds, and 2 yds. How many yards did Lacy rush for?

32. Yesterday when I woke up, it was 14 degrees outside. By 3 p.m., it had warmed up by 11 degrees. Last night, it dropped 30 degrees. What was the temperature when I woke up this morning?

33. MidValley City is at 1,083 feet above sea level. Lower Ridge in the Atlantic Ocean is at 5,692 feet below sea level. What is the difference in the sea levels?

34. I went scuba diving. At first, I went down 35 feet which was at the bottom of the cove. Then, I rose 28 feet to look at some coral. From this spot, I dove down 14 feet to see some cool fish. At what elevation did I end up at?

Answers

1. -39.2 2. -28 3. 12 4. 18

5. 7 6. -53 7. -15 8. 5.6088

9. 52 10. 0 11. undefined 12. -11

13. -1620 14. 375 15. -103 16. 50

17. -45 18. -110 19. 4 20. -16

21. 20 22. 37 23. 109

24. -2 25. -11 26. 540 27. 59

28. $704.92 29. $75.62 30. $145.48 31. 16.5 yds

32. -5ᵒ 33. 6,775 feet 34. -21 ft or 21 ft below sea level