Elementary Algebra v2 1st edition Redden Test Bank

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Chapter 1
1.1 Real Numbers and the Number Line

Simplify the following

1. $-\left(-\left|-6\right|\right)$
   6; easy

2. $-\left|\frac{4}{2}\right|$
   -2; moderate

3. $-\left|-1.24\right|$
   -1.24; easy

Simplify and determine if the following real numbers are rational or irrational

4. $-\left|-5.5\right|$
   Rational; easy

5. $\frac{1}{-3.67}$
   Rational; moderate

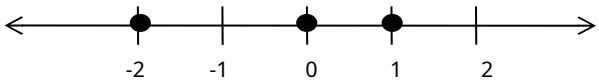
6. $-\pi$
   Irrational; easy

7. $\sqrt{4}$
   Rational; moderate

8. -545,679.23
   Rational; easy

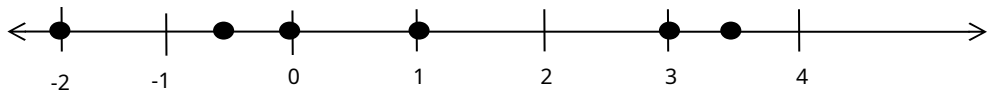
9. $\left|\frac{2}{1}\right|$
   Rational; moderate

Create a number set using the following number lines and coordinates

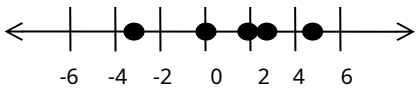
10. 

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$\{$ **-2, 0, 1**$\}$

11. 

$\{-2,-0.5,0,1,3,3.5\}$

12. 

$\{2.5,0,2,2.5,4.5\}$

Determine if the following are less than, greater than, or equal to using ¿,<,=¿

13. -6 _____ -1 _____0
$-6<-1<0$; **easy**

14. -26 _____ - $|-29|$
$-26>-|-29|$; **easy**

15. The sum of the first three whole numbers _____ 3
$(0+1+2)=3$; **moderate**

16. $\frac{-1}{2}$ _____ $\frac{1}{-2}$
$\frac{-1}{2}=\frac{1}{-2}$; **easy**

17. - (- (- $|-30|$)) _____ 0
$-(-(-|-30|))<0$; **hard**

18. - $|\pm 6|$_____ 9 _____ $\sqrt{81}$
$-|\pm 6|<9=\sqrt{81}$; **moderate**

Determine the missing value

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19. $|?| = 4$
±4

20. $|-|?|| = -1$
No Solution, ∅

True or False

21. The set of natural numbers is infinite.
True

22. $\frac{-3}{1} = \frac{1}{-3}$
True

23. $\sqrt{3}$ is an irrational number.
True

24. '0' is a natural number.
False; '0' is a whole number

25. $(-(-5))<0$
True

26. $\sqrt{6} \neq 3$
True

27. Absolute value is denoted by '$\langle n \rangle$'
False; absolute value is denoted by '$|n|$'

28. $-6 < -1 < \sqrt{1}$
True

29. $-|3| \neq -|-3|$
False; $-|3| = -|-3|$

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30. The opposite of $\frac{-1}{7}$ is $\frac{1}{-7}$

False; the opposite is $\frac{1}{7}$

Chapter 1
1.2 Adding and Subtracting Integers

Add or subtract

1. 47 + 16
   63; easy

2. -9 + 35
   26; easy

3. (-13) – 12
   -25; easy

4. 21 + (-6)
   15; moderate

5. 11 – (-1) + 6
   18; moderate

6. (-36) + (-16) – 31
   -83; moderate

7. (17 – 6) + 47
   58; moderate

8. (31 + 1) – (-19)
   51; moderate

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9. $((4 + 9) – 3) + 10$
   20; hard

10. $((16 – 10) – (-1)) + 3$
    10; hard

Convert the following into mathematical expressions and solve

11. The sum of -91, 6 and 13.
    -72; easy

12. The difference of -6, 2, 31 and -16.
    -23; moderate

13. The sum of 1000, 36 and -13, all of which is subtracted from 1200.
    177; moderate

14. The difference of 13, 9, 7 and -40, all of which is added to 65.
    102; moderate

15. Thirty-seven less than 40 plus 10.
    13; moderate

16. Mount Everest is the tallest mountain in the world. It is 29,035 feet high. If the base camp is at an elevation of 17,500 feet, what is the difference a climber would have to climb in order to reach the top?
    11,535 feet; easy

17. A fishing boat and its crew spent three days fishing offshore. On the first day, the fishermen pulled in 560 pounds of fish. The fishermen only caught 180 pounds of fish the second day. On the third day, the fishermen caught 722 pounds of fish. How many pounds of fish were caught during the fishing trip?
    1462 pounds of fish; easy

Find the distance between the two numbers on a number line

18. -18 and 2
    20; easy

19. 1 and 76
    75; easy

20. -50 and 50

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100; moderate

True or False

21. -17 plus 9 equals 8.
    False; -8

22. The difference of 31 and 6, all of which is added to 1 is 26.
    True

23. The sum of 67, 1 and -88 is -20.
    True

24. (-23 + 45) - 122 = 101
    False; -100

25. A race car records its speed at mile one to be 122 mph. By mile three it has increased to 145 mph. From mile one to mile three, the race car has increased its speed by 25 mph.
    False; 23 mph

26. The distance between -19 and 30 on a number line is 49 units.
    True

27. Four thousand thirty minus fifty-eight is three thousand nine hundred seventy-two.
    True

28. 77 minus the sum of 45 and 9 is 22.
    False; 23

29. Distance is calculated by subtracting the first point from the second, $b-a$.
    True

30. The length of a ruler is 11 inches more than its width. If the width is 1 inch, the length is 11 inches.
    False; the ruler is 12 inches in length

Chapter 1
1.3 Multiplying and Dividing Integers

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Multiply or divide

1. 6(9)
   54; easy

2. $36 \div 2$
   18; easy

3. $3 \cdot 9 \cdot 1$
   27; easy

4. $\frac{14}{7}$
   2; easy

5. $\frac{36}{2(3)}$
   6; moderate

6. $9 * 11$
   99; easy

7. $\frac{3(6)}{(24 \div 12)}$
   9; moderate

8. The product of 12 and 12
   144; moderate

9. Determine the quotient of 60 and 15
   4; moderate

10. Calculate the product of 8 and 3, all of which is divided by 6
    4; hard

Determine the prime factorization of the following problems

11. 130
    $2 \cdot 5 \cdot 13$**; moderate**

12. 55

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$5 \cdot 11$**; easy**

13. 205
    $5 \cdot 41$**; easy**

14. 310
    $2 \cdot 5 \cdot 31$**; moderate**

Find the average value

15. $\{26,30, 31\}$
    29; easy

16. $\{100, 115, 140, 150, 160\}$
    133; moderate

17. $\{4, 6, 10, 12\}$
    8; easy

18. The Olympic downhill ski team ran three time trials to calculate an average run time. The times came in as follows: 1:02, 1:12 and 1:05. What was their average downhill time?
    1:06; moderate

19. Mary, Steve and Thomas spent the whole day collecting gems at a local gem mine. Mary found 28 while Steve only found 7. Thomas found the most, 70. What was the average number of gems found between them?
    35; moderate

20. A golf tournament was hosted to help raise money for a local charity. In total, 8 players contributed. Overall, the scores went as follows: 84, 81, 78, 78, 77, 73, 72 and the winner with a 69. What was the average golf score?
    76.5; hard

True of False

21. An asterisk (*) is sometimes used as a symbol in division.
    False; it is used in multiplication

22. The equation $\frac{36}{6}$ is the same as $36 \div 6$.
    True

23. In $\frac{6}{2}$, the "6" is the divisor.

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False; 2 is the divisor and 6 is the dividend

24. The quotient of 18 and 6 is 3.
True

25. $\frac{17}{0}$ is undefined.
True

26. 40 is the average of 20, 50, 60, and 70.
False; 50 is the average

27. Three times three is nine.
True

28. The product of (-9) and (-6) is 54.
True

29. $\frac{-2(6)}{(-4)} = -3$
False; 3

30. Four multiplied by one, times the product of 2 and 3 is equal to 24.
True

Chapter 1
1.4 Fractions

Reduce each fraction into its lowest terms

1. $\frac{3}{27}$
$\frac{1}{9}$**; easy**

2. $\frac{12}{144}$

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$\frac{1}{12}$; **easy**

3. $\frac{16}{40}$

   $\frac{2}{5}$; **easy**

4. $\frac{36}{72}$

   $\frac{1}{2}$; **easy**

5. $\frac{9}{16}$

   $\frac{9}{16}$; **It is already in its lowest terms; moderate**

Rewrite as an improper fraction

6. $1\frac{3}{14}$

   $\frac{17}{14}$; **moderate**

7. $2\frac{6}{11}$

   $\frac{28}{11}$; **moderate**

8. $-¿1\frac{13}{14}$

   $\frac{-27}{14}$; **moderate**

9. $3\frac{9}{13}$

   $\frac{48}{13}$; **moderate**

10. $1\frac{2}{5}$

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$\frac{7}{5}$

Multiple or divide

11. $\frac{1}{2} \cdot \frac{3}{7}$

    $\frac{3}{14}$**; easy**

12. $\frac{2}{5} \cdot \frac{1}{4}$

    $\frac{1}{10}$**; easy**

13. $\left(\frac{3}{4}\right)\left(\frac{-1}{6}\right)$

    $\frac{-1}{8}$**; moderate**

14. $\frac{5}{7} \div \frac{1}{2}$

    $\frac{10}{7}$**; moderate**

15. $3\frac{1}{3} \div \frac{1}{4}$

    $\frac{40}{3}$**; hard**

Add or Subtract

16. $\frac{11}{16}$ **+¿** $\frac{5}{16}$

    1; easy

17. $\frac{6}{7} - \frac{2}{7}$

    $\frac{4}{7}$**; easy**

18. $\frac{2}{3} + \frac{3}{4}$

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$\frac{17}{12}$**; moderate**

19. $6-\frac{2}{5}$

    $\frac{28}{5}$**; moderate**

20. $\frac{1}{4}+\frac{2}{5}+\frac{1}{2}$

    $\frac{23}{20}$*; moderate*

True or False

21. $\frac{4}{5}$ is reduced to its lowest terms.

    True

22. For the fraction $\frac{1}{2}$, "1" is called the denominator.

    False, 1 is the numerator

23. $\frac{2}{3}+\frac{3}{4}+1=\frac{29}{12}$

    True

24. $\frac{31}{6}$ is considered a mixed number.

    False, it is an improper fraction

25. The reciprocal of $\frac{3}{4}$ is $\frac{-3}{4}$.

    False, the reciprocal is $\frac{4}{3}$

26. In order to add or subtract two or more fractions, the fractions must have a common denominator. To obtain a common denominator you first find the least common multiple or LCM between the denominators. The least common multiple (LCM) of the expression $\frac{1}{2}-\frac{2}{3}$ *is* 6.

    True

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27. $\left(\frac{3}{4}\right)\left(\frac{2}{7}\right)=\frac{3}{14}$

True

28. The product of $\frac{1}{2}$ and 2 is 1.

True

29. $4\frac{1}{6}$ is the equivalent of $\frac{25}{6}$.

True

30. When multiplying fractions, you need a common denominator.

False, you do not need a common denominator when multiplying fractions

Chapter 1
1.5 Review of Decimals and Percents

Write the following decimals as mixed numbers

1. 36.6

$36\frac{3}{5}$**; easy**

2. 1.74

1 $\frac{37}{50}$**; easy**

3. 74.3

74 $\frac{3}{10}$**; easy**

4. 13.4

13 $\frac{2}{5}$**; easy**

Write the following fractions as decimals. Round to the nearest hundredth

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5. $\frac{15}{6}$

2.5; easy

6. $2\frac{3}{7}$

2.43; moderate

7. $1\frac{2}{17}$

1.12; moderate

8. $\frac{9}{2}$

4.5; easy

9. $3\frac{11}{16}$

3.69; moderate

10. $\frac{13}{19}$

0.68; easy

Convert the following percents to decimals

11. 61%

0.61; easy

12. 122%

1.22; moderate

13. What is 30% of 1200?

360; hard

Convert the following percents to fractions

14. 30%

$\frac{3}{10}$**; easy**

15. 56%

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$\frac{14}{25}$**; moderate**

16. $7\frac{9}{13}\%$

    $\frac{1}{13}$**; hard**

Convert the following to percents

17. 0.45

    45 %**; easy**

18. 210

    210 %**; easy**

19. $\frac{2}{5}$

    40 %**; moderate**

20. $\frac{13}{7}$

    185.71%**; hard**

True/False

21. 31.1 is the equivalent to $31\frac{1}{10}$.

    True

22. The decimal form of $5\frac{1}{8}$ is 5.25.

    False, 5.125

23. Percent is represented using the symbol '∞.'

    False, %

24. To convert the decimal 4.16 to a percent, you would divide by 100.

    False, multiply by 100

25. 39% is the equivalent to 39/100.

    True

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26. $3\frac{1}{7}$ converted to a decimal is approximately 3.14.
True

27. 40 % of 120 is 49.
False, 48

28. The '$\cdots$' is used over a number to show it repeats, such as $2.1\dot{\dot{6}}$.
False, you would use '$-$¿' as in, 2,1$\overline{6}$

29. The '3' in 2.136 represents the thousandths place.
False, it represents the hundredths place

30. 1.29 is equal to 129%.
True

Chapter 1
1.6 Exponents and Square Roots

Simplify the following

1. 6^2
36; easy

2. $-(9)^2$
-81**; easy**

3. $(12)^2$
144; easy

4. $\left(\frac{1}{5}\right)^2$
$\frac{1}{25}$**; moderate**

5. 2^2
4; easy

6. List the squares of all integers from -6 to 0.

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36, 25, 16, 9, 4, 1, 0; moderate

7. 9^3
729; easy

8. $(-1)^7$
-1; easy

9. $-(-3)^5$
243; moderate

10. 2^4
16; easy

11. $\left(\frac{1}{3}\right)^3$
$\frac{1}{27}$**; moderate**

12. $-\left(\frac{2}{5}\right)^4$
$-\frac{16}{225}$**; hard**

13. $\sqrt{4}$
2; easy

14. $\sqrt{20}$
$2\sqrt{5}$**; moderate**

15. $\sqrt{400}$
20; easy

16. $\sqrt{567}$
$9\sqrt{7}$**; hard**

17. $\sqrt{\frac{1}{36}}$
$\frac{1}{6}$**; moderate**

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18. $\sqrt{0.81}$
0.9; moderate

19. $\sqrt{\frac{5}{49}}$
$\frac{\sqrt{5}}{7}$**; hard**

20. $\sqrt{(-5)^2}$
5; moderate

True or False

21. 6^2 is the equivalent to $\sqrt{6}$.
False, 6^2 is the equivalent to 6^2

22. The square root of 144 is 12.
True

23. Nine and sixteen are considered perfect squares.
True

24. $\left(\frac{1}{2}\right)^3$ is the equivalent to $\frac{1}{2}\cdot\frac{1}{2}\cdot\frac{1}{2}$.
True

25. $\left(\frac{5}{11}\right)^2 = \frac{10}{22}$
False, $\frac{25}{121}$

26. The square root of -25 is 5.
False, $\sqrt{-25}$ **is undefined**

27. Zero to the 4th power is zero.
True

28. $\sqrt{(-2)^6} = 9$
False, 8

29. The square root of 36 plus 7 is 6.56.
True

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30. $\sqrt{\frac{1}{169}} = 13$

False, $\frac{1}{13}$

Chapter 1
1.7 Order of Operations

Simplify the following

1. $-6(3+1)$

   -24**; easy**

2. $\frac{(9+6)}{3}$

   5; easy

3. $(1)^4\left(6+\left(2^2\right)\right)$

   10; moderate

4. $\frac{\left((-4)^2+2\right)}{2}$

   9; moderate

5. $\frac{\left((16+2)3\right)}{2(3)}$

   9; moderate

6. $(4\div 2)^3$

   8; easy

7. $\left((13)^2+1\right)\div 5$

   34; moderate

8. $\left((4+6)^2\right)-\sqrt{81}$

   91; moderate

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9. $\sqrt{9}+\left((16)3\right)$

51; easy

10. $(6\div 3)+\left(\sqrt{36}-4\right)$

4; moderate

11. $\sqrt{\frac{(8+1)}{2^2}}$

$\frac{3}{2}$**; hard**

12. $\left[9-\left(6(3+1)\right)^2\right]+10$

-557**; hard**

13. $(4)^3-\left[(6+2)^2+(3)^2\right]$

-9**; hard**

14. $\sqrt{\frac{25}{9}}+\left(\frac{7}{6}-\frac{2}{3}\right)$

$\frac{13}{6}$**; hard**

15. $\left|-4-11\right|+\left((6)^2-\sqrt{9}\right)$

48; moderate

16. $\left[3+\left|-16+(0)^2\right|\right]\div 6$

$\frac{19}{6}$**; moderate**

17. $\frac{\sqrt{\left|-6^2\right|}}{2}$

3; easy

18. $\left(\frac{1}{2}+\frac{2}{7}\right)\div\left(\left|3-\frac{1}{4}\right|+6\right)$

$\frac{22}{245}$**; hard**

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19. $\left[\left(\left(\frac{4}{9}\right)^2+2\right)-|4-6|\right]$

$\frac{16}{81}$; **moderate**

20. $\left[\left(\sqrt{\frac{1}{9}}\right)^2\right]-16$

$\frac{-143}{9}$; **moderate**

True or False

21. $9-(6-2)^2=-7$

True

22. $\left(\frac{1}{2}+\frac{3}{7}\right)-1=\frac{6}{7}$

False; $\frac{-1}{14}$

23. The first step in order of operations is to perform all addition and subtraction.

False; the first step in order of operations (PEMDAS) is to perform the appropriate calculations within parentheses.

24. $\sqrt{(16-3)^2}=13$

True

25. $\left[\frac{(19+2)}{3}\right]+6=\frac{1}{13}$

False; 13

26. $\left[((39-1)\div 2)-\left(13+(1)^2\right)\right]=6$

False; 5

27. $\left(\frac{\sqrt{49}}{2}\right)-\frac{1}{2}=3$

True

28. $\left|17-(3)^2\right|\div 2=8$

False; 4

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29. $-\left|-2-6\right|+\left(\frac{1}{2}\right)^2=\frac{-31}{4}$

True

30. The absolute value of ten minus 16, added to the square root of three plus one is equal to eight.
True; $\left|10-16\right|+\sqrt{(3+1)}=8$

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