

Algebra I Syllabus

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This is a challenging and fast-paced high school credit class designed for the “math-ready” student who has mastery of basic Pre-Algebra. Students will connect previous learning to Algebra as we explore its connection to graphing and solving equations. At least five different families of functions will be studied this year. We use the Holt textbook (with online resources) and suggest students have a graphing calculator (ti-84 for example). Algebra I at Lee Burneson Middle School is the pathway to the high school honors track. Students who consistently maintain an A average for the year will be recommended for the honors math track in high school (Honors Geometry and Honors Algebra II, leading to AP Calculus).

Course Topics

1st Quarter: Foundations for Algebra, Equations & Inequalities, Proportions

2nd Quarter: Introduction to Functions (Linear and Absolute Value), Systems of Equations & Inequalities

Mid-Term Exam

3rd Quarter: Exponents and Polynomials, Factoring, Quadratic Functions

4th Quarter: Exponential and Radical Functions, Rational Functions and Equations

Final Exam

Grading Scale and Policy

HS Algebra I is made up of two (1/2 credit each) semesters. Semester grades will be reflected on WHS report card (and begin a HS GPA.) A semester grade is calculated using the following weights:

Semester I

First Quarter (40%)

Second Quarter (40%)

Mid-Term Exam (20%)

Semester II

Third Quarter (40%)

Fourth Quarter (40%)

Final Exam (20%)

A+	97% up	4.33
A	93 < 97	4.00
A-	90 < 93	3.67
B+	87 < 90	3.33
B	83 < 87	3.00
B-	80 < 83	2.67
C+	77 < 80	2.33
C	73 < 77	2.00
C-	70 < 73	1.67
D+	67 < 70	1.33
D	63 < 67	1.00
D-	60 < 63	0.67
F	s < 60%	0.00

Students planning on taking Algebra I at LBMS should be mature students possessing the following attributes: Responsibility, diligence, self-motivation and inquisitiveness.

Additionally, students will be expected to complete a summer work packet. This packet will include a summary of content from pre-algebra. A test will be given during the first week of school covering this material.

Name : _____

Score : _____

Teacher : _____

Date : _____

Adding Fractions

1) $\frac{1}{10} + \frac{6}{30} =$

2) $\frac{3}{4} + \frac{9}{10} =$

3) $\frac{11}{13} + \frac{7}{26} =$

4) $\frac{6}{27} + \frac{7}{9} =$

5) $\frac{11}{56} + \frac{2}{4} =$

6) $\frac{1}{12} + \frac{4}{9} =$

7) $\frac{12}{24} + \frac{1}{4} =$

8) $\frac{2}{21} + \frac{4}{7} =$

9) $\frac{12}{26} + \frac{1}{13} =$

10) $\frac{4}{8} + \frac{1}{4} =$



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Subtracting Fractions

1) $\frac{8}{15} - \frac{1}{9} =$

2) $\frac{2}{3} - \frac{2}{6} =$

3) $\frac{4}{7} - \frac{12}{21} =$

4) $\frac{2}{3} - \frac{9}{54} =$

5) $\frac{16}{29} - \frac{1}{58} =$

6) $\frac{4}{10} - \frac{8}{25} =$

7) $\frac{2}{4} - \frac{1}{3} =$

8) $\frac{11}{23} - \frac{9}{46} =$

9) $\frac{13}{23} - \frac{4}{46} =$

10) $\frac{6}{23} - \frac{9}{46} =$



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Multiplying Fractions

1) $\frac{4}{9} \times \frac{5}{15} =$

2) $\frac{1}{2} \times \frac{4}{6} =$

3) $\frac{6}{18} \times \frac{2}{5} =$

4) $\frac{1}{2} \times \frac{1}{9} =$

5) $\frac{1}{2} \times \frac{7}{8} =$

6) $\frac{1}{8} \times \frac{14}{15} =$

7) $\frac{4}{9} \times \frac{4}{14} =$

8) $\frac{6}{20} \times \frac{2}{3} =$

9) $\frac{6}{20} \times \frac{3}{7} =$

10) $\frac{12}{14} \times \frac{7}{9} =$



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Dividing Fractions

1) $\frac{2}{6} \div \frac{7}{20} =$

2) $\frac{17}{18} \div \frac{1}{2} =$

3) $\frac{1}{5} \div \frac{7}{10} =$

4) $\frac{6}{10} \div \frac{3}{4} =$

5) $\frac{1}{3} \div \frac{1}{16} =$

6) $\frac{3}{5} \div \frac{2}{10} =$

7) $\frac{14}{20} \div \frac{3}{5} =$

8) $\frac{12}{18} \div \frac{6}{15} =$

9) $\frac{2}{6} \div \frac{3}{5} =$

10) $\frac{5}{14} \div \frac{5}{15} =$



Name : _____

Score : _____

Teacher : _____

Date : _____

1) $(+28) \div (+4) =$

2) $(+36) \div (+4) =$

3) $(-2) \times (+2) =$

4) $(+6) - (-9) =$

5) $(+4) - (+7) =$

6) $(+2) + (-5) =$

7) $(+6) - (+9) =$

8) $(+7) \times (-9) =$

9) $(+3) - (+2) =$

10) $(+7) + (-6) =$

11) $(+20) \div (+5) =$

12) $(+8) - (-7) =$

13) $(-18) \div (-3) =$

14) $(-6) + (-4) =$

15) $(+9) + (+3) =$

16) $(+2) \times (-6) =$

17) $(+9) - (-3) =$

18) $(+2) \times (+6) =$

19) $(+3) \times (+7) =$

20) $(-18) \div (-9) =$

21) $(-9) + (+4) =$

22) $(+5) \times (-4) =$

23) $(+8) + (+4) =$

24) $(-48) \div (-8) =$

25) $(-8) + (-8) =$

26) $(+4) \div (+2) =$

27) $(-9) \times (+7) =$

28) $(-4) - (+2) =$

29) $(-56) \div (+7) =$

30) $(+5) \times (+6) =$



Name : _____ Score : _____

Teacher : _____ Date : _____

Solve the Exponents

1) $(10)^2 =$ _____

11) $(-12)^2 =$ _____

2) $(9)^3 =$ _____

12) $(6)^2 =$ _____

3) $(-2)^7 =$ _____

13) $(8)^3 =$ _____

4) $(-8)^3 =$ _____

14) $(4)^4 =$ _____

5) $(7)^3 =$ _____

15) $(-3)^3 =$ _____

6) $(-6)^3 =$ _____

16) $(3)^3 =$ _____

7) $(-3)^4 =$ _____

17) $(-9)^2 =$ _____

8) $(-7)^3 =$ _____

18) $(2)^8 =$ _____

9) $(-4)^4 =$ _____

19) $(12)^2 =$ _____

10) $(-5)^3 =$ _____

20) $(-2)^4 =$ _____



Name : _____

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Scientific Notation

Write each number in standard format.

- 1) 1.517×10^7 = _____
- 2) 8.292×10^2 = _____
- 3) 7.556×10^6 = _____
- 4) 7.2595×10^3 = _____
- 5) 5.523×10^2 = _____
- 6) 1.8×10^3 = _____
- 7) 3.518×10^8 = _____
- 8) 8.0949×10^4 = _____
- 9) 8.01×10^4 = _____
- 10) 6.815×10^5 = _____

Write each number in scientific notation.

- 11) 199000 = _____
- 12) 97900 = _____
- 13) 32.431 = _____
- 14) 283790000 = _____
- 15) 2120000000 = _____
- 16) 30.919 = _____
- 17) 52235000 = _____
- 18) 3281000 = _____
- 19) 1797000000 = _____
- 20) 876000 = _____



Name : _____ Score : _____

Teacher : _____ Date : _____

Order of Operations

1) $((12 + 5) + (14 \div 7)^2) + 2^2$

6) $10 + (6 + (11 - 4)^2) - 4$

2) $(14 \div 2)^2 + ((13 + 2) \times 3^2)$

7) $(7^2 + (10 \div 5 + 2^2)) + 3^2$

3) $((4 + 2)^2 + 6) + 11 - 3^2$

8) $(12 \div 6)^2 + ((18 + 2) \times 4^2)$

4) $((11 - 5)^2 + 7) - 3 + 5^2$

9) $((15 + 2) - (18 \div 6)^2) \times 4^2$

5) $12 + (6 \times (10 - 2)^2) + 9$

10) $(7^2 + (24 \div 4 + 2^2)) - 5^2$



LESSON
2-6

Practice A
Rates, Ratios, and Proportions

1. The ratio of boys to girls in an art class is 3:5. There are 12 boys in the class. How many girls are in the class?

Find each unit rate.

2. An ostrich can run 174 feet in 3 seconds. 3. It costs \$6.30 to mail a 6-pound package.

4. Eric read 150 pages in one hour. What is Eric's reading rate in pages per minute?

Solve each proportion.

5. $\frac{y}{8} = \frac{2}{4}$

6. $\frac{1}{3} = \frac{6}{x}$

7. $\frac{10}{m} = \frac{25}{5}$

8. $\frac{3}{4} = \frac{t}{100}$

9. $\frac{2}{100} = \frac{b}{-200}$

10. $\frac{x+1}{6} = \frac{1}{3}$

11. Ron has a model car. The scale of the model to the actual car is 1:10. The length of the model car is 15 inches. How long is the actual car?

12. On a map, the distance between Jacksonville, FL and Tallahassee, FL is about 8 inches. According to the scale, 1 inch represents 20 miles. About how far apart are the two cities?

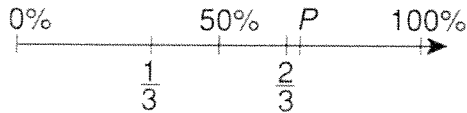
CHAPTER
6

Quiz

Section A: Lessons 6-1 through 6-4

Choose the best answer.

1. What is the percent of the unknown value p represented on the number line below?



- A 25% C 66%
 B 60% D 70%
2. What is 40% written as a fraction?
- F $\frac{1}{25}$ H $\frac{3}{8}$
 G $\frac{2}{5}$ J $\frac{3}{5}$
3. What is $\frac{5}{8}$ written as a decimal?
- A 0.375 C 0.58
 B 0.5 D 0.625
4. Estimate 19% of 25.
- F about 3 H about 5
 G about 4 J about 6

5. 80 is about what percent of 228?

- A 33% C 66%
 B 50% D 80%

6. 54 is what percent of 150?

- F 36% H 50%
 G 42% J 54%

7. Find 5% of 356.

- A 17.8 C 35.6
 B 20 D 71.2

8. 33 is 220% of what number?

- F 15 H 72.6
 G 22 J 100

9. The approximate length of the Nile river is 6693 km. The Amazon river is approximately 96% as long as the Nile. To the nearest kilometer, what is the length of the Amazon?

- A 6021 km C 6425 km
 B 6256 km D 6693 km

Name : _____

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Probability Using a Spinner

1) What is the probability of the spinner not landing on A or C ? _____

2) What is the probability of the spinner landing on B or E ? _____

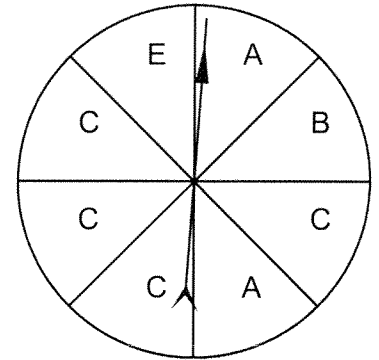
3) What is the probability of the spinner landing on C or E ? _____

4) What is the probability of the spinner not landing on E ? _____

5) Do you have an equal chance of landing on either A or C ? _____

6) Do you have an equal chance of landing on either B or E ? _____

7) What is the probability of the spinner not landing on C ? _____



8) What is the probability of the spinner landing on 4 ? _____

9) What is the probability of the spinner not landing on 2 or 4 ? _____

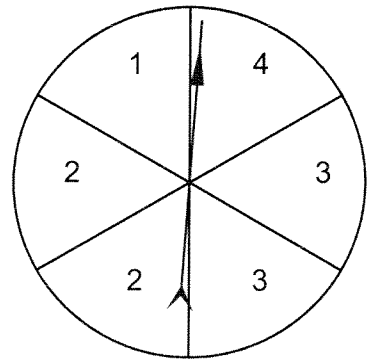
10) What is the probability of the spinner not landing on 1 ? _____

11) What is the probability of the spinner landing on 2 or 3 ? _____

12) What is the probability of the spinner not landing on 2 or 3 ? _____

13) What is the probability of the spinner landing on 3 ? _____

14) Do you have an equal chance of landing on either 1 or 4 ? _____



Name : _____ Score : _____

Teacher : _____ Date : _____

Mean, Mode, Median, and Range

1) 19, 19, 10, 18, 15, 11, 13

Mean ____ Median ____ Mode _____ Range ____

6) 8, 9, 15, 18, 10, 10, 14

Mean ____ Median ____ Mode _____ Range ____

2) 11, 8, 14, 10, 13, 15, 13

Mean ____ Median ____ Mode _____ Range ____

7) 13, 13, 6, 11, 7, 9, 11

Mean ____ Median ____ Mode _____ Range ____

3) 15, 17, 17, 11, 8, 8, 15

Mean ____ Median ____ Mode _____ Range ____

8) 7, 14, 13, 9, 8, 8, 11, 10

Mean ____ Median ____ Mode _____ Range ____

4) 8, 16, 20, 20, 15, 9, 16, 8

Mean ____ Median ____ Mode _____ Range ____

9) 19, 17, 16, 19, 19

Mean ____ Median ____ Mode _____ Range ____

5) 6, 10, 7, 12, 6, 9, 13

Mean ____ Median ____ Mode _____ Range ____

10) 10, 13, 12, 16, 19

Mean ____ Median ____ Mode _____ Range ____



A. Simplify each expression.

1) $-3g + 4 - 5g + 8$

2) $6m + 5n - 7n + m$

3) $22f + 4g - 5e - 2f$

4) $-7r^2 + 3r - 2r^2$

5) $-3p \cdot 5$

6) $4c^2 - 2c + c^2 - 8c$

7) $(-5m)(2m)$

8) $-6(2d - e + 5)$

9) $4(8v - 1)$

10) $5h(4 - 2h)$

11) $-11(5 - 6x)$

12) $-9(a + 2b - 3c)$

13) $5(3e + 2f) - 4(e + 7f)$

14) $13 - 3(2x - 4)$

B. Evaluate the expression if $x = 5$ and $y = -10$

15) $3x - 2y$

16) $-xy^2$

17) $-4(2y + x)$

A. Solve each equation.

1) $x - 5 = -12$

2) $r + \frac{5}{8} = \frac{1}{4}$

3) $-7f = -35$

4) $15.4 + m = -9.8$

5) $-\frac{b}{11} = 4$

6) $12 - h = -14$

7) $-5 + k = 14$

8) $-20 = -5m$

9) $-20 = -\frac{v}{4}$

10) $18 = 10 - r$

11) $0.8n = -12$

12) $-29 = -11 + g$

B. Graph each inequality.

13) $c > -2$

14) $x \geq 4$

15) $r \leq 1$

16) $y < -7$



C. Solve each inequality.

17) $g + 22 > 25$

18) $5h < 80$

19) $\frac{a}{3} \leq 2$

20) $d - 12 \leq 11$

21) $-1.2 + r > -4.8$

22) $3y > -21$

CHAPTER

1

Quiz

Section A: Lesson 1-1 through Lesson 1-7

Choose the best answer.

- Evaluate $2x + 8$ for $x = 5$.
A 10 C 28
B 18 D 32
- Evaluate $4a + 7c$ for $a = 5$ and $c = 3$.
F 19 H 41
G 30 J 118
- Which algebraic expression represents "4 times the sum of 12 and b "?
A $4 + 12 + b$ C $4(12 + b)$
B $4 + (12 + b)$ D $4(12 - b)$
- Which algebraic expression represents "3 less than the sum of 5 and r "?
F $(5 \cdot r) - 3$ H $(5 + r) - 3$
G $3 - (5 + r)$ J $(5 - r) - 3$
- Place these numbers in order from least to greatest: $-2, 4, -8, 5$
A $-2, -8, 4, 5$ C $-2, 4, 5, -8$
B $-8, -2, 4, 5$ D $4, 5, -2, -8$

Add.

- $6 + (-9)$
F -15 H 3
G -3 J 15

- Evaluate the expression $11 + d + (-4)$ for $d = -6$.

A -9 C 1
B -1 D 9

Subtract.

- $-12 - (-4)$

F -16 H 8
G -8 J 16

- $-5 - (-12)$

A -17 C 2
B -7 D 7

Multiply or divide.

- $-7(-2)$

F -14 H 5
G -5 J 14

- $\frac{-9(11)}{-3}$

A -33 C 33
B 27 D 99

CHAPTER

1

Quiz

Section B: Lesson 1-8 through Lesson 1-10

Choose the best answer.

1. Which value of z is the solution for the equation $43 - z = 18$?

A $z = 13$ C $z = 25$
 B $z = 15$ D $z = 61$

2. Which value of t is the solution for the equation $49 = t + 16$?

F 27 H 55
 G 33 J 65

3. Solve $-17 + v = 3$.

A $v = -14$ C $v = 14$
 B $v = 3$ D $v = 20$

4. What is the value of k for this equation: $\frac{k}{8} = 12$?

F $k = \frac{3}{2}$ H $k = 66$

G $k = 20$ J $k = 96$

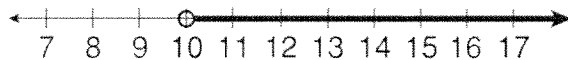
5. What is the value of m for this equation: $4m - 15 = 33$?

A $m = 12$ C $m = 52$
 B $m = 48$ D $m = 60$

6. Solve $\frac{h}{6} = -7$.

F $h = -42$ H $h = 13$
 G $h = -13$ J $h = 42$

7. Which inequality is represented by this graph?



A $x + 3 > 10$ C $y + 5 > 15$

B $t - 3 \leq 22$ D $5 > \frac{w}{2}$

8. Solve $\frac{k}{5} < -2$.

F $k < -10$ H $k < 7$
 G $k < -7$ J $k < 10$

9. Solve $3.7 + y > 4.9$.

F $y < -1.2$ H $y < 1.2$
 G $y > -1.2$ J $y > 1.2$

CHAPTER
3

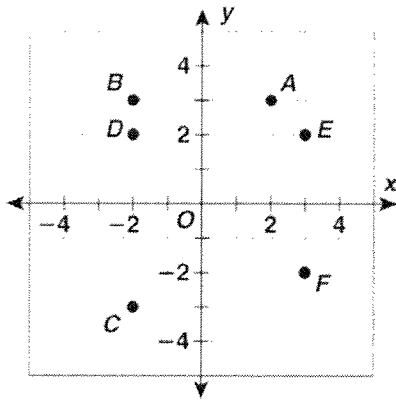
Quiz

Section A: Lesson 3-1 through 3-3

Choose the best answer.

- Which ordered pair is a solution for $y = 2x + 8$?
 A (1, 20) C (3, 15)
 B (4, 12) D (4, 16)
- Which ordered pair is a solution for $y = 5x - 3$?
 F (17, 4) H (4, 17)
 G (5, 28) J (3, 18)

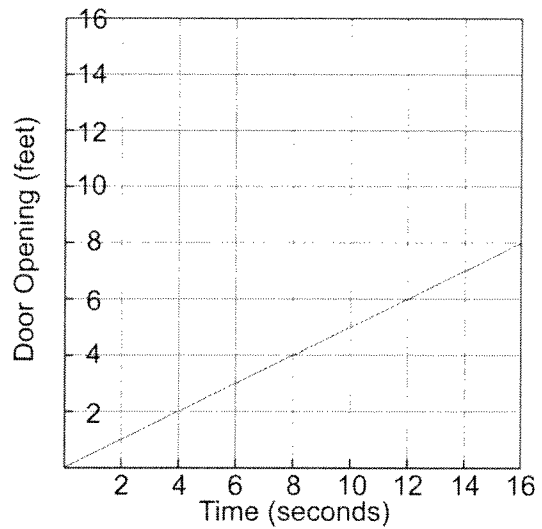
Use this coordinate plane for questions 3–5.



- Which point has coordinates (3, -2)?
 A point C C point E
 B point D D point F

- Identify the coordinates for point B.
 F (-2, -3) H (-2, 3)
 G (2, 3) J (2, -3)
- Identify the coordinates for point A.
 A (3, 3) C (2, 2)
 B (2, 3) D (-2, -3)

The graph shows how many seconds it takes for a garage door to open.



- How many seconds does it take for the garage door to be half-way up?
 F 4 seconds H 6 seconds
 G 8 seconds J 16 seconds



Solve the problems below using your knowledge of perimeter and area concepts.

1. A piece of cardboard has a length of 13 in and a width of 5 in. What is the perimeter?
2. A triangular-shaped rug has a base of 9 feet and a height of 6 feet. What is the area?
3. A parallelogram has a base of 12 meters and a height of 7 meters. What is the area?
4. Find the perimeter of an octagon with a side length of 14 cm.
5. The perimeter of a square is 188 cm. What is the length of each side?
6. A rectangular garden has a length of 15 meters, and a width of 12 meters. What is the area?
7. A trapezoid has bases of 8 cm and 7 cm, and a height of 2 cm. What is the area?
8. A rectangular back yard has a width of 16 feet and an area of 320 square feet. What is the length?
9. A square garden has a side of 5 meters. How much fence is needed to enclose the garden?
10. A square has an area of 196 square centimeters. What is the perimeter?