



Linton Hall School

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This Summer Math Packet is for all students who will be entering 8th grade Pre-Algebra in the fall of 2020.

Please note: This packet contains two sections. The first section is a review of 7th grade concepts and the second section is readiness for 8th grade Pre-Algebra.

This packet must be completed prior to the start of school. It will be collected our first week back.

We understand everyone needs a break and wants to have fun over the summer. Therefore, please know that this is just reinforcement to make sure our students do not lose the skills they have learned throughout the school year.

Thank you for your continued support and have a blessed summer.

Name _____

Summer Practice

Chapter 1

1.1 Describe the pattern. Then write the next three numbers.

1. 57, 49, 41, 33, ... 2. 5, 15, 45, 135, ... 3. 1600, 800, 400, 200, ...

4. Describe the pattern.

Then draw the next figure.



1.2 Evaluate the expression for the given value of the variable.

5. $75 \div m$ when $m = 5$ 6. $k - 26$ when $k = 43$ 7. $4x$ when $x = 9$
8. The expression $60h$ can be used to find the number of minutes in h hours. Find the number of minutes in 24 hours.

1.3 Write the product as a power.

9. $11 \cdot 11 \cdot 11$ 10. $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$ 11. $y \cdot y \cdot y \cdot y$ 12. $a \cdot a \cdot a \cdot a \cdot a \cdot a$

Evaluate the power. ex. $3^3 = 3 \cdot 3 \cdot 3 = 27$

13. 10^2 14. 7^4 15. 0^6 16. 2^8

1.4 Evaluate the expression.

17. $1 + (7 - 3)^3$ 18. $\frac{36 - 8}{2 + 5}$ 19. $72 \div 4 \div 3$ 20. $(3^3 - 2)(1 + 2)$

1.5 Solve the equation using mental math.

21. $x + 6 = 13$ 22. $\frac{z}{8} = 2$ 23. $1 = 10 - p$ 24. $280 = 20t$

1.6 Find the perimeter and the area of the rectangle or square with the given dimensions.

25. $l = 11$ feet, $w = 7$ feet 26. $l = 8$ yards, $w = 7$ yards 27. $s = 16$ centimeters

- 1.7 28. You are ordering pitchers of lemonade for you and 6 of your friends. One pitcher of lemonade can fill 5 glasses. How many pitchers should you order if each person wants 3 glasses of lemonade?

29. There are 5 tennis players in a tournament. If each tennis player plays every other player once, how many games will be played?

30. The items that Frank needs to buy for his cookout are given in the table. If Frank spends \$7, how much does each ear of corn cost?

| Item | Total Cost |
|--------------------------|------------|
| 1 package of ground beef | \$3 |
| 1 bag of rolls | \$2 |
| 4 ears of corn | ? |

Chapter 2

2.1 Order the numbers from least to greatest.

1. 0.25, 0.5, 0.05, 5.2 2. 7.9, 9.7, 0.97, 0.79 3. 6.2, 6.08, 6.28, 6.82
4. Round 8.4746 to the nearest thousandth.

2.2 Find the sum or difference. Use estimation to check your answer.

5. $8.33 - 7.41$ 6. $16.7 + 129.413$ 7. $702.85 + 35.2$ 8. $42.9 - 26.74$

Evaluate the expression when $a = 13.2$ and $b = 7.49$.

9. $6.4 + a$ 10. $a + b$ 11. $8.613 - b$ 12. $8 + a - b$

2.3 Find the product. Then check that your answer is reasonable.

13. 2.7×0.8 14. 3.05×0.26 15. 1.48×0.037 16. 46×2.718
17. 0.89×8.76 18. 3.5×6.3 19. 6.4×9.05 20. 0.006×1.2

2.4 Find the quotient. Then check that your answer is reasonable.

21. $84.14 \div 7$ 22. $19.98 \div 2.7$ 23. $6.4 \div 0.08$ 24. $0.115 \div 5.75$
25. $0.126 \div 2.8$ 26. $0.884 \div 0.26$ 27. $23.24 \div 1.12$ 28. $3.91 \div 3.4$
29. Find the quotient $18 \div 3.21$. Round your answer to the nearest hundredth.

2.5 Write the number in scientific notation.

30. 5210 31. 8,200,000,000 32. 900,000 33. 431.6

Write the number in standard form.

34. 1.4×10^4 35. 4.221×10^8 36. 6×10^1 37. 5.3761×10^6

2.6 Copy and complete using the appropriate metric unit.

38. The mass of a pencil is 6 ?. 39. A bottle of mouthwash holds 710 ?.
40. A pair of scissors is 14 ? long. 41. The mass of a pair of sneakers is 1 ?.

2.7 Copy and complete the statement.

42. $24 \text{ cm} = \underline{\quad?} \text{ mm}$ 43. $0.4 \text{ g} = \underline{\quad?} \text{ mg}$
44. $795 \text{ g} = \underline{\quad?} \text{ kg}$ 45. $120 \text{ L} = \underline{\quad?} \text{ kL}$
46. $0.07 \text{ kL} = \underline{\quad?} \text{ mL}$ 47. $36,100 \text{ mm} = \underline{\quad?} \text{ km}$

Copy and complete the statement using $<$, $>$, or $=$.

48. $3 \text{ km} \underline{\quad?} 3200 \text{ m}$ 49. $9450 \text{ g} \underline{\quad?} 9.45 \text{ kg}$ 50. $5.4 \text{ L} \underline{\quad?} 540 \text{ mL}$

Chapter 3

3.1 Find the mean, median, mode(s), and range of the data.

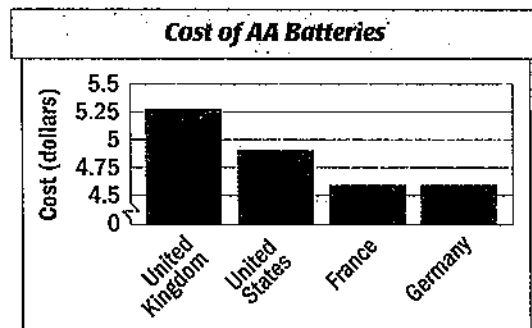
- 18, 22, 57, 29, 22, 41
- 7, 7.5, 7.1, 7.9, 7.5, 7, 7.3, 7.5
- 8, 7, 2, 9, 11, 7, 10, 3, 12, 2, 6
- 94, 108, 145, 171, 162, 197, 186, 76, 88, 143
- Record low temperatures in July: 43°F , 69°F , 35°F , 51°F , 40°F , 35°F , 44°F , and 35°F .

3.2 6. The table below shows the life spans of various U.S. currency bills. Make a bar graph of the data. Make a conclusion about the data.

| | | | | | |
|-------------------------------|-----|---|----|----|----|
| Denomination (dollars) | 1 | 5 | 10 | 20 | 50 |
| Life Span (years) | 1.5 | 2 | 3 | 4 | 9 |

3.3 8. Make an ordered stem-and-leaf plot of the data in Exercise 5. Then make a conclusion about the data.

3.6 13. Explain why the data display below could be misleading.



14. You want to display the winning long jump distances for men and women in various years of the summer Olympics. What type of data display should you use? *Explain* your choice.

Chapter 4

4.1 Tell whether the number is *prime* or *composite*. Then write all the factors of the number.

1. 75

2. 71

3. 83

4. 91

Use a factor tree to write the prime factorization of the number.

5. 84

6. 117

7. 125

8. 225

4.2 Find the greatest common factor of the numbers using the Clark method. Then tell whether the numbers are relatively prime.

9. 72, 96

10. 35, 105

11. 32, 76

12. 51, 175

4.3 Write the fractions in simplest form. Tell whether they are equivalent.

13. $\frac{20}{24}, \frac{30}{36}$

14. $\frac{21}{56}, \frac{28}{84}$

15. $\frac{12}{16}, \frac{14}{18}$

16. $\frac{14}{35}, \frac{22}{55}$

4.4 Find the least common multiple of the numbers using the Clark method.

17. 12, 16

18. 20, 25

19. 9, 14

20. 32, 160

4.5 Copy and complete the statement using $<$, $>$, or $=$.

21. $\frac{5}{6} ? \frac{3}{4}$

22. $\frac{2}{5} ? \frac{1}{4}$

23. $\frac{35}{42} ? \frac{30}{36}$

24. $\frac{3}{10} ? \frac{1}{3}$

25. $\frac{23}{45} ? \frac{4}{9}$

26. $\frac{14}{56} ? \frac{18}{72}$

27. $\frac{7}{18} ? \frac{7}{10}$

28. $\frac{22}{25} ? \frac{9}{10}$

4.6 Write the mixed number as an improper fraction.

29. $7\frac{1}{3}$

30. $2\frac{3}{10}$

31. $5\frac{4}{9}$

32. $10\frac{1}{4}$

Write the improper fraction as a mixed number.

33. $\frac{25}{7}$

34. $\frac{52}{11}$

35. $\frac{33}{8}$

36. $\frac{47}{6}$

4.7 Write the fraction or mixed number as a decimal.

37. $\frac{7}{9}$

38. $\frac{26}{125}$

39. $8\frac{9}{10}$

40. $3\frac{7}{12}$

Write the decimal as a fraction or mixed number.

41. 0.68

42. 0.5

43. 5.625

44. 1.925

Chapter 5

5.1 Find the sum or difference.

1. $\frac{5}{8} + \frac{1}{8}$

2. $\frac{1}{6} + \frac{5}{12}$

3. $\frac{8}{11} - \frac{3}{11}$

4. $\frac{8}{9} - \frac{5}{6}$

5. $\frac{7}{18} + \frac{1}{3}$

6. $\frac{3}{7} + \frac{5}{7}$

7. $\frac{13}{15} - \frac{1}{5}$

8. $\frac{11}{12} - \frac{7}{12}$

5.2 Find the sum or difference.

9. $3\frac{1}{4} + 3\frac{3}{4}$

10. $8\frac{7}{9} + 1\frac{8}{9}$

11. $2\frac{2}{5} + 4\frac{3}{10}$

12. $7\frac{3}{4} + 1\frac{5}{6}$

13. $11\frac{3}{5} - 8\frac{4}{5}$

14. $5\frac{1}{2} - 3\frac{3}{8}$

15. $6 - 5\frac{4}{7}$

16. $8\frac{3}{8} - 3\frac{2}{3}$

5.3 Find the product.

17. $\frac{7}{9} \cdot \frac{3}{4}$

18. $\frac{7}{10} \cdot 24$

19. $3\frac{1}{5} \cdot 1\frac{1}{4}$

20. $\frac{5}{8} \cdot 4\frac{4}{9}$

21. $12 \times \frac{1}{6}$

22. $\frac{7}{24} \times \frac{8}{14}$

23. $4\frac{2}{5} \times \frac{2}{11}$

24. $10\frac{1}{2} \times 5\frac{1}{3}$

5.4 Write the reciprocal of the number.

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

26. $\frac{1}{5}$

27. $3\frac{1}{6}$

28. $1\frac{9}{10}$

Find the quotient.

29. $\frac{3}{4} \div \frac{7}{8}$

30. $\frac{6}{25} \div 4$

31. $7\frac{4}{5} \div \frac{13}{15}$

32. $2\frac{1}{6} \div 1\frac{1}{3}$

5.5 Copy and complete using the appropriate customary unit.

33. A hockey rink is 200 ? long.34. A hockey puck weighs 6 ?.35. A washing machine holds 24 ?.36. A bottle of lotion holds $8\frac{1}{2}$?.37. A watermelon weighs 11 ?.38. A computer keyboard is $18\frac{1}{2}$? long.

5.6 Copy and complete the statement.

39. 3 yd = ? in.40. 5 pt = ? c41. 4 lb = ? oz42. 8000 lb = ? T43. 19 qt = ? gal ? qt44. 13,200 ft = ? mi ? ft

Find the sum or difference.

45.
$$\begin{array}{r} 7 \text{ qt } 1 \text{ pt} \\ + 2 \text{ qt } 1 \text{ pt} \\ \hline \end{array}$$

46.
$$\begin{array}{r} 3 \text{ ft } 7 \text{ in.} \\ + 1 \text{ ft } 9 \text{ in.} \\ \hline \end{array}$$

47.
$$\begin{array}{r} 3 \text{ T } 100 \text{ lb} \\ - 1 \text{ T } 400 \text{ lb} \\ \hline \end{array}$$

48.
$$\begin{array}{r} 5 \text{ c } 2 \text{ fl oz} \\ - 4 \text{ c } 7 \text{ fl oz} \\ \hline \end{array}$$

Chapter 6

6.1 Order the integers from least to greatest.

1. $-3, 0, 6, -10, 3$ 2. $63, -48, -9, 32, -106$ 3. $71, -70, 15, 99, -10, -84$
4. Write the integer that represents a depth of 128 feet below sea level.
Then write the opposite of that integer.

6.2 Find the sum.

5. $-18 + 14$ 6. $75 + (-38)$ 7. $12 + 27 + (-12)$ 8. $-8 + (-5) + 6$

6.3 Find the difference.

9. $7 - 11$ 10. $-25 - 10$ 11. $64 - (-15)$ 12. $-8 - (-7)$

6.4 Find the product.

13. $-9(-8)$ 14. $20(-7)$ 15. $-3(-4)(-1)$ 16. $6(0)(-100)$

6.5 Find the quotient.

17. $65 \div (-5)$ 18. $0 \div (-3)$ 19. $-42 \div (-14)$ 20. $-60 \div 12$

6.6 Show that the number is rational by writing it in $\frac{a}{b}$ form. Then give the multiplicative inverse and the additive inverse of the number.

21. -0.9 22. $8\frac{1}{6}$ 23. -1 24. $-\frac{7}{9}$

Evaluate the expression. Justify each step you take.

25. $-6 \cdot 10 \cdot \left(-\frac{1}{6}\right)$ 26. $-\frac{3}{5} + \frac{7}{11} + \frac{3}{5}$ 27. $50 \cdot 13 \cdot 2$ 28. $0.5 + (-9 + 2.5)$

6.7 Use the distributive property to evaluate the expression. (Rewrite using the distrib. property)

29. $8(9.1) + 8(0.9)$ 30. $11\left(\frac{5}{9}\right) + 11\left(\frac{4}{9}\right)$ 31. $12\left(\frac{5}{8}\right) - 12\left(\frac{1}{8}\right)$ 32. $6(4.8)$

33. You buy 4 teddy bears for \$24.95 each. Write an expression that will allow you to use the distributive property to find the total cost of the teddy bears. Then evaluate the expression.

6.8 Plot the point and describe its location in a coordinate plane.

34. $W(-3, -4)$ 35. $Z(0, 2)$ 36. $N(6, -1)$ 37. $L(-1, 6)$

38. Plot and connect the points $P(-4, 5)$, $Q(-4, 1)$, $R(2, 1)$, and $S(2, 5)$ to form a rectangle. Find the length, width, and area of the rectangle.

39. The table shows the pressures at various depths underwater. Make a scatter plot of the data. Then make a conclusion about the data.

| | | | | | | | |
|---------------------------------|----|----|----|------|----|----|----|
| Depth (ft) | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
| Pressure (lb/in. ²) | 17 | 19 | 21 | 23.5 | 26 | 28 | 30 |

Chapter 8

8.1 In the 2001–2002 season, the Michigan State men’s hockey team had 18 wins, 6 losses, and 4 ties in their conference. Use this information to write the specified ratio.

1. Wins to losses 2. Wins to games played 3. Losses to games played

Write the ratio as a fraction in simplest form.

4. 30 : 36 5. 12 to 48 6. 28 to 70

8.2 Find the unit rate.

7. \$11.89 for 8.2 gallons 8. \$370 for 40 hours 9. 432 words in 12 minutes
10. Find the average speed of a runner who completes a 1500 meter race in 4 minutes 10 seconds.
11. Determine which bottle of shampoo is the better buy: 15 fluid ounces for \$2.59 or 20 fluid ounces for \$3.59.

8.3 Draw the graph of the line that passes through the points. Then find the slope of the line. $\text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{\updownarrow}{\leftarrow\rightarrow}$

12. (7, 2), (−5, 4) 13. (−6, 0), (−5, 1)
14. (3, 4), (5, 9) 15. (−2, −3), (1, −3)
16. Draw a line that has a slope of −2 and passes through (0, −5).

8.4 Use equivalent ratios or algebra to solve the proportion.

17. $\frac{x}{30} = \frac{5}{6}$ 18. $\frac{28}{24} = \frac{r}{6}$ 19. $\frac{f}{36} = \frac{3}{4}$ 20. $\frac{12}{15} = \frac{c}{10}$

8.5 Use the cross products property to solve the proportion.

21. $\frac{a}{39} = \frac{6.5}{13}$ 22. $\frac{30}{12} = \frac{6}{z}$ 23. $\frac{9}{x} = \frac{5}{14}$ 24. $\frac{2.4}{9} = \frac{n}{1.5}$
25. There are 180 calories in a 30 gram serving of walnuts. How many calories are there in a 100 gram serving of walnuts?

8.6 In Exercises 26–28, use the fact that a floor plan of a house is drawn using a scale of 1 in. : 8 ft.

26. Find the actual dimensions of a rectangular basement that is 2.5 inches long and 2.25 inches wide on the floor plan.
27. Find the actual dimensions of a rectangular deck that is 3.75 inches long and 1.875 inches wide on the floor plan.
28. Find the actual dimensions of a rectangular bedroom that is 2.75 inches long and 1.75 inches wide on the floor plan.

Chapter 9

9.1 Write the percent as a fraction.

1. 60%

2. 49%

3. 84%

4. 56%

Write the fraction as a percent.

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

6. $\frac{9}{10}$

7. $\frac{1}{4}$

8. $\frac{17}{25}$

9.2 Use a proportion to answer the question. $\frac{\text{part}}{\text{whole}} = \frac{\%}{100}$

9. What percent of 25 is 16?

10. 54 is 75% of what number?

11. What number is 27% of 250?

12. What percent of 32 is 12?

9.3 Write the percent as a decimal or the decimal as a percent.

13. 2%

14. 20.4%

15. 106%

16. 0.94%

17. 0.575

18. 0.082

19. 0.0012

20. 4.2

9.4 Use the percent equation to answer the question.

21. 57 is 125% of what number?

22. What number is 3% of 18?

23. What percent of 64 is 20?

24. 60 is 40% of what number?