

Math Summer Enrichment Packet for Geometry CP and Honors

Purpose: The purpose of our summer math enrichment program is to ensure that the skills, knowledge, and content mastered over the course of the year are retained over the summer. This will help students to be better prepared and ready to succeed in their next math course.

Grading: Completion of all the assigned pages/problems will be counted as your first test/project grade of the year. You will be graded upon completion of all the work.

What portions of the math packet do I need to complete?

On the chart below (a copy of this packet is also available on the SJP website), teachers have identified specific portions of the math packet for you to complete. You only need to complete the problems assigned for your course level – i.e. CP or Honors. Any unused portions of the packet will be used as a supplementary resource during the course of the upcoming school year.

Where do I complete the assignments?

All problems should be completed on lined paper. Neatness is important in math, so take your time and use a pencil. Show all of your work and clearly number all of the problems. Circle your answers.

Due Dates: The assignment will be due to your teacher on Tuesday, September 12th. (Note the first day of school is Thursday, September 7, 2017.)

What if I struggle with the work?

Parents/guardians and students, please be aware that the math packet does not come with additional examples and/or instructions. Sections of this packet may be challenging for you at times. We suggest that if you run into difficulty with certain concepts and/or problems that you seek out advice from family and friends, previous math tutors, or utilize resources such as Khan Academy. Also, the back of the packet has answers to every odd numbered problem. You may use the answers to check your work. The key is to give the assignment your best effort and to only use the solutions at the back of the packet as an aid.

Have a great summer!

We look forward to working with all of you next year.

Best wishes,
Your Math Department

Chapter 0

Pretest

State which metric unit you would probably use to measure each item.

- length of a computer keyboard
- mass of a large dog

Complete each sentence.

- 4 ft = in.
- 180 g = kg
- 32 g \approx oz
- 35 yd \approx m
- 21 ft = yd
- 3 T = lb
- 3 mi \approx km
- 5.1 L \approx qt

11. **TUNA** A can of tuna is 6 ounces. About how many grams is it?

12. **CRACKERS** A box of crackers is 453 grams. About how many pounds is it? Round to the nearest pound.

13. **DISTANCE** A road sign in Canada gives the distance to Toronto as 140 kilometers. What is this distance to the nearest mile?

PROBABILITY A bag contains 3 blue chips, 7 red chips, 4 yellow chips, and 5 green chips. A chip is randomly drawn from the bag. Find each probability.

- $P(\text{yellow})$
- $P(\text{red or blue})$
- $P(\text{green})$
- $P(\text{not red})$

Evaluate each expression if $r = 3$, $q = 1$, and $w = -2$.

- $4r + q$
- $\frac{r + 3q}{4r}$
- $|2 - r| + 17$
- $rw - 6$
- $\frac{5w}{3r + q}$
- $8 + |q - 5|$

Solve each equation.

- $k + 3 = 14$
- $5c = 20$
- $6t - 18 = 30$
- $\frac{r}{4} = -8$
- $-\frac{w}{2} = -9$
- $27 - 6d = 7 + 4d$
- $n - 7 = 9$
- $n + 2 = -11$
- $4x + 7 = -1$
- $\frac{3}{5}b = -2$
- $3y - 15 = y + 1$
- $2(m - 16) = 44$

Chapter 0

Solve each inequality.

36. $y - 13 < 2$

38. $\frac{11}{4} > -6$

40. $x + 12 > -14$

42. $-\frac{11}{7} \geq 3$

37. $t + 8 \geq 19$

39. $9a \leq 45$

41. $-2w < 24$

43. $-\frac{b}{5} \leq -6$

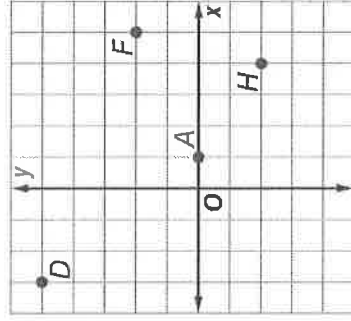
Write the ordered pair for each point shown.

44. F

45. H

46. A

47. D



Graph and label each point on a coordinate plane.

48. B(4, 1)

49. G(0, -3)

50. R(-2, -4)

51. P(-3, 3)

52. Graph the triangle with vertices J(1, -4), K(2, 3), and L(-1, 2).

53. Graph four points that satisfy the equation $y = 2x - 1$.

Solve each system of equations.

54. $y = 2x$

$y = -x + 6$

56. $y = 2x + 1$

$y = 3x$

58. $x + y = -6$

$2x - y = 3$

55. $-3x - y = 4$

$4x + 2y = -8$

57. $\frac{1}{2}x - y = -1$

$x - 2y = 5$

59. $\frac{1}{3}x - 3y = -4$

$x - 9y = -12$

Simplify.

60. $\sqrt{18}$

61. $\sqrt{\frac{25}{49}}$

62. $\sqrt{24x^2y^3}$

63. $\frac{3}{4 - \sqrt{5}}$

Lesson 0.1



Selected Answers and
Step-by-Step Solutions

Exercises

State which metric unit you would probably use to measure each item.

1. radius of a tennis ball
2. length of a notebook
3. mass of a textbook
4. mass of a beach ball
5. liquid in a cup
6. water in a bathtub

Complete each sentence.

7. 120 in. = ? ft
8. 18 ft = ? yd
9. 10 km = ? m
10. 210 mm = ? cm
11. 180 mm = ? m
12. 3100 m = ? km
13. 90 in. = ? yd
14. 5280 yd = ? mi
15. 8 yd = ? ft
16. 0.62 km = ? m
17. 370 mL = ? L
18. 12 L = ? mL
19. 32 fl oz = ? c
20. 5 qt = ? c
21. 10 pt = ? qt
22. 48 c = ? gal
23. 4 gal = ? qt
24. 36 mg = ? g
25. 13 lb = ? oz
26. 130 g = ? kg
27. 9.05 kg = ? g

Lesson 0.2



Selected Answers and
Step-by-Step Solutions

Exercises

Complete each sentence.

1. 8 in. \approx ? cm
2. 15 m \approx ? yd
3. 11 qt \approx ? L
4. 25 oz \approx ? g
5. 10 mi \approx ? km
6. 32 cm \approx ? in.
7. 20 km \approx ? mi
8. 9.5 L \approx ? qt
9. 6 yd \approx ? m
10. 4.3 kg \approx ? lb
11. 10.7 L \approx ? pt
12. 82.5 g \approx ? oz
13. $2\frac{1}{4}$ lb \approx ? kg
14. 10 ft \approx ? m
15. $1\frac{1}{2}$ gal \approx ? L
16. 350 g \approx ? lb
17. 600 in. \approx ? m
18. 2.1 km \approx ? yd
19. CEREAL A box of cereal is 13 ounces. About how many grams is it?
20. FLOUR A bag of flour is 2.26 kilograms. How much does it weigh?
Round to the nearest pound.
21. SAUCE A jar of tomato sauce is 1 pound 10 ounces.
About how many grams is it?

Lesson 0.3



Selected Answers and
Step-by-Step Solutions

Exercises

A die is rolled. Find the probability of each outcome.

1. $P(\text{less than } 3)$
2. $P(\text{even})$
3. $P(\text{greater than } 2)$
4. $P(\text{prime})$
5. $P(4 \text{ or } 2)$
6. $P(\text{integer})$

A jar contains 65 pennies, 27 nickels, 30 dimes, and 18 quarters. A coin is randomly selected from the jar. Find each probability.

7. $P(\text{penny})$
8. $P(\text{quarter})$
9. $P(\text{not dime})$
10. $P(\text{penny or dime})$
11. $P(\text{value greater than } \$0.15)$
12. $P(\text{not nickel})$
13. $P(\text{nickel or quarter})$
14. $P(\text{value less than } \$0.20)$

PRESENTATIONS The students in a class are randomly drawing cards numbered 1 through 28 from a hat to determine the order in which they will give their presentations. Find each probability.

15. $P(13)$
16. $P(1 \text{ or } 28)$
17. $P(\text{less than } 14)$
18. $P(\text{not } 1)$
19. $P(\text{not } 2 \text{ or } 17)$
20. $P(\text{greater than } 16)$

Lesson 0.3

The table shows the results of an experiment in which three coins were tossed.

| Outcome | HHH | HHT | HTH | THH | TTH | THT | HTT | TTT |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| Tally | | | | | | | | |
| Frequency | 5 | 5 | 6 | 6 | 7 | 5 | 8 | 8 |

21. What is the experimental probability that all three of the coins will be heads?
The theoretical probability?
22. What is the experimental probability that at least two of the coins will be heads? The theoretical probability?
23. **DECISION MAKING** You and two of your friends have pooled your money to buy a new video game. Describe a method that could be used to make a fair decision as to who gets to play the game first.
24. **DECISION MAKING** A new study finds that the incidence of heart attack while taking a certain diabetes drug is less than 5%. Should a person with diabetes take this drug? Should they take the drug if the risk is less than 1%? Explain your reasoning.

Lesson 0.4



Selected Answers and
Step-by-Step Solutions

Exercises

Evaluate each expression if $a = 2$, $b = -3$, $c = -1$, and $d = 4$.

1. $2a + c$

2. $\frac{bd}{2c}$

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

4. $3d - c$

5. $\frac{3b}{5a + c}$

6. $5bc$

7. $2cd + 3ab$

8. $\frac{c - 2d}{a}$

Evaluate each expression if $x = 2$, $y = -3$, and $z = 1$.

9. $24 + |x - 4|$

10. $13 + |8 + y|$

11. $|5 - z| + 11$

12. $|2y - 15| + 7$

Lesson 0.5



Selected Answers and
Step-by-Step Solutions

Exercises

1. $r + 11 = 3$

3. $d - 7 = 8$

5. $-\frac{p}{12} = 6$

7. $\frac{12f}{5} = -18$

9. $\frac{6}{7}y = 3$

11. $f - 14 = -29$

13. $b + 2 = -5$

15. $-12q = 84$

17. $5c - 7 = 8c - 4$

19. $\frac{m}{10} + 15 = 21$

21. $8t + 1 = 3t - 19$

23. $5c - 24 = -4$

2. $n + 7 = 13$

4. $\frac{8}{5}a = -6$

6. $\frac{x}{4} = 8$

8. $\frac{y}{7} = -11$

10. $c - 14 = -11$

12. $p - 21 = 52$

14. $q + 10 = 22$

16. $5t = 30$

18. $2\ell + 6 = 6\ell - 10$

20. $-\frac{m}{8} + 7 = 5$

22. $9n + 4 = 5n + 18$

24. $3n + 7 = 28$

Lesson 0.5

25. $-2y + 17 = -13$

27. $\frac{2}{9}x - 4 = \frac{2}{3}$

29. $-4 - p = -2$

31. $-2(n + 7) = 15$

33. $-8a - 11 = 37$

35. $2(5 - n) = 8$

26. $-\frac{t}{13} - 2 = 3$

28. $9 - 4g = -15$

30. $21 - b = 11$

32. $5(m - 1) = -25$

34. $\frac{7}{4}q - 2 = -5$

36. $-3(d - 7) = 6$

Lesson 0.6



Selected Answers and
Step-by-Step Solutions

Exercises

- $x - 7 < 6$
- $x + 7 \geq -5$
- $4y < 20$
- $-\frac{a}{8} < 5$
- $\frac{f}{6} > -7$
- $\frac{a}{11} \leq 8$
- $d + 8 \leq 12$
- $m + 14 > 10$
- $12k \geq -36$
- $6t - 10 \geq 4t$
- $3z + 8 < 2$
- $4c + 23 \leq -13$
- $m - 21 < 8$
- $x - 6 \geq 3$
- $-3b \leq 48$
- $-\frac{p}{5} \geq 14$
- $2z - 9 < 7z + 1$
- $18. -4t > 36$
- $\frac{2}{3}b - 6 \leq -2$
- $20. \frac{8}{3}t + 1 > -5$
- $7q + 3 \geq -4q + 25$
- $22. -3n - 8 > 2n + 7$
- $-3w + 1 \leq 8$
- $24. -\frac{4}{5}k - 17 > 11$

Lesson 0.7

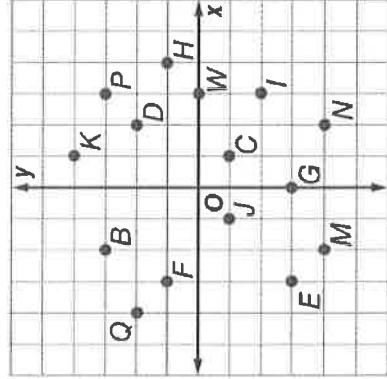


Selected Answers and
Step-by-Step Solutions

Exercises

Write the ordered pair for each point shown.

1. B
2. C
3. D
4. E
5. F
6. G
7. H
8. I
9. J
10. K
11. W
12. M
13. N
14. P
15. Q



Graph and label each point on a coordinate plane. Name the quadrant in which each point is located.

16. $M(-1, 3)$
17. $S(2, 0)$
18. $R(-3, -2)$
19. $P(1, -4)$
20. $B(5, -1)$
21. $D(3, 4)$
22. $T(2, 5)$
23. $L(-4, -3)$

Lesson 0.7

Graph the following geometric figures.

24. a square with vertices $W(-3, 3)$, $X(-3, -1)$, $Z(1, 3)$, and $Y(1, -1)$
25. a polygon with vertices $J(4, 2)$, $K(1, -1)$, $L(-2, 2)$, and $M(1, 5)$
26. a triangle with vertices $F(2, 4)$, $G(-3, 2)$, and $H(-1, -3)$

Graph four points that satisfy each equation.

27. $y = 2x$

28. $y = 1 + x$

29. $y = 3x - 1$

30. $y = 2 - x$

Lesson 0.8



Selected Answers and
Step-by-Step Solutions

Exercises

Solve by graphing.

1. $y = -x + 2$

2. $y = 3x - 3$

3. $y - 2x = 1$

$y = -\frac{1}{2}x + 1$

$y = x + 1$

$2y - 4x = 1$

Solve by substitution.

4. $-5x + 3y = 12$

5. $x - 4y = 22$

6. $y + 5x = -3$

$x + 2y = 8$

$2x + 5y = -21$

$3y - 2x = 8$

Solve by elimination.

7. $-3x + y = 7$

8. $3x + 4y = -1$

9. $-4x + 5y = -11$

$3x + 2y = 2$

$-9x - 4y = 13$

$2x + 3y = 11$

Name an appropriate method to solve each system of equations.

Then solve the system.

10. $4x - y = 11$

11. $4x + 6y = 3$

12. $3x - 2y = 6$

$2x - 3y = 3$

$-10x - 15y = -4$

$5x - 5y = 5$

13. $3y + x = 3$

14. $4x - 7y = 8$

15. $x + 3y = 6$

$-2y + 5x = 15$

$-2x + 5y = -1$

$4x - 2y = -32$

Lesson 0.9



Selected Answers and
Step-by-Step Solutions

Exercises

Simplify.

1. $\sqrt{32}$

3. $\sqrt{50} \cdot \sqrt{10}$

5. $\sqrt{6} \cdot \sqrt{6}$

7. $\sqrt{98x^3y^6}$

9. $\sqrt{\frac{81}{49}}$

11. $\sqrt{\frac{63}{8}}$

13. $\frac{\sqrt{10p^3}}{\sqrt{27}}$

15. $\frac{4}{5 - 2\sqrt{3}}$

17. $\frac{3}{\sqrt{48}}$

19. $\frac{3\sqrt{5}}{2 - \sqrt{2}}$

2. $\sqrt{75}$

4. $\sqrt{12} \cdot \sqrt{20}$

6. $\sqrt{16} \cdot \sqrt{25}$

8. $\sqrt{56a^2b^4c^5}$

10. $\sqrt{\frac{121}{16}}$

12. $\sqrt{\frac{288}{147}}$

14. $\frac{\sqrt{108}}{\sqrt{24^6}}$

16. $\frac{7\sqrt{3}}{5 - 2\sqrt{6}}$

18. $\frac{\sqrt{24}}{\sqrt{125}}$

20. $\frac{3}{-2 + \sqrt{13}}$

Lesson 0-1

1. cm 3. kg 5. mL 7. 10 9. 10,000 11. 0.18
13. 2.5 15. 24 17. 0.370 19. 4 21. 5 23. 16
25. 208 27. 9050

Lesson 0-2

1.20 3.12.1 5.16 7.12 9.5.4 11.22.47
13.1.125 15.5.4 17.15 19.367.9 g 21.735.8 g

1. $\frac{1}{3}$ or 33% 3. $\frac{2}{3}$ or 67% 5. $\frac{1}{3}$ or 33% 7. $\frac{13}{28}$ or about 46% 9. $\frac{11}{14}$ or about 79% 11. $\frac{9}{70}$ or about 13%
13. $\frac{9}{28}$ or about 32% 15. $\frac{1}{28}$ or about 3.6% 17. $\frac{13}{28}$ or about 46% 19. $\frac{13}{14}$ or about 93% 21. $\frac{1}{10}$ or 10%; $\frac{1}{8}$ or

12.5% 23. Sample answer: Assign each friend a different colored marble: red, blue, or green. Place all the marbles in a bag and without looking, select a marble from the bag. Whoever's marble is chosen gets to go first.

Lesson 0-4

1.3 3.-2 5.-1 7.-26 9.26 11.15



Lesson 0-5

1. -8 3. 15 5. -72 7. $-\frac{15}{2}$ 9. $\frac{7}{2}$ 11. -15 13. -7
15. -7 17. -1 19. 60 21. -4 23. 4 25. 15 27. 21
29. -2 31. $-\frac{29}{2}$ 33. -6 35. 1

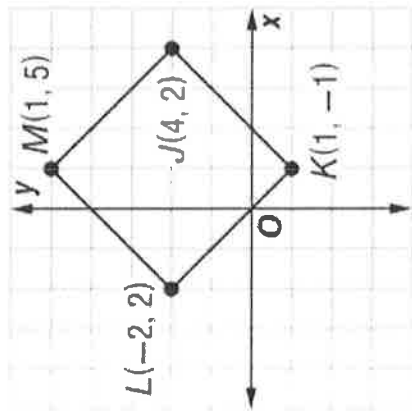
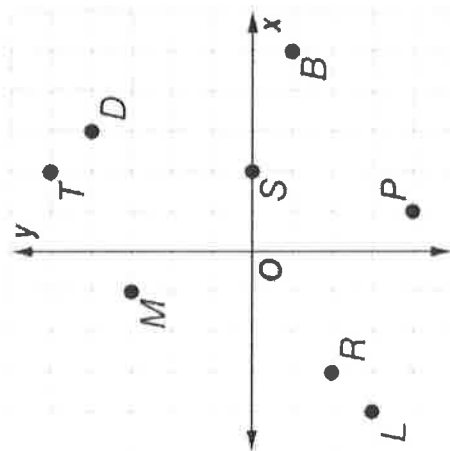
Lesson 0-6

1. $\{x|x < 13\}$ 3. $\{y|y < 5\}$ 5. $\{t|t > -42\}$ 7. $\{d|d \leq 4\}$
9. $\{k|k \geq -3\}$ 11. $\{z|z < -2\}$ 13. $\{m|m < 29\}$
15. $\{b|b \geq -16\}$ 17. $\{z|z > -2\}$ 19. $\{b|b \leq 10\}$
21. $\{q|q \geq 2\}$ 23. $\left\{w|w \geq -\frac{7}{3}\right\}$

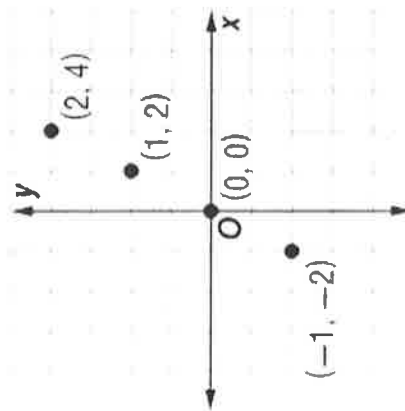
Lesson 0-7

1. $(-2, 3)$ 3. $(2, 2)$ 5. $(-3, 1)$ 7. $(4, 1)$ 9. $(-1, -1)$
 11. $(3, 0)$ 13. $(2, -4)$ 15. $(-4, 2)$ 17. none 19. IV
 21. I 23. III

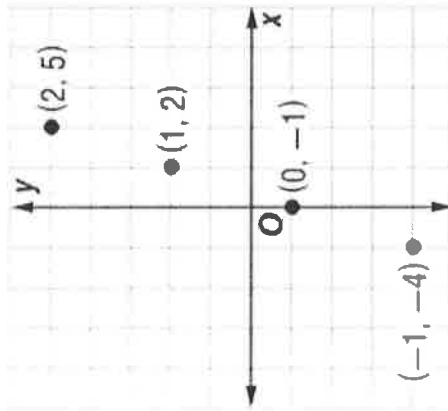
25.



27.



29.



Lesson 0-8

1. $(2, 0)$ 3. no solution 5. $(2, -5)$ 7. $(-\frac{4}{3}, 3)$
9. $(4, 1)$ 11. elimination, no solution 13. elimination
or substitution, $(3, 0)$ 15. elimination or substitution,
 $(-6, 4)$

Lesson 0-9

$$1. 4\sqrt{2} \quad 3. 10\sqrt{5} \quad 5. 6 \quad 7. 7x|y^3|\sqrt{2x} \quad 9. \frac{9}{7} \quad 11. \frac{3\sqrt{14}}{4}$$

$$13. \frac{p\sqrt{30p}}{9} \quad 15. \frac{20 + 8\sqrt{3}}{13} \quad 17. \frac{\sqrt{3}}{4} \quad 19. \frac{6\sqrt{5} + 3\sqrt{10}}{2}$$