

Rising Grade 7

Pre Algebra I and II

Pre Algebra Summer Packet

During the summer, please complete the following review sheets. Please show as much work as you can for each problem. This will help if you are asked how you got the answer.

These review sheets will be collected the first week of school and will help prepare you for Pre Algebra.

Have a great summer!

1-1**Skills Practice****Using a Problem-Solving Plan**

Solve each problem.

- MONEY** Jackie wants to take out an ad in the newspaper for her upcoming garage sale. She can buy a 4-line ad for \$4.35 that will run for three days. If she wants to spend no more than \$15 on advertising, how long can she advertise?
- BASEBALL** Cy Young pitched in 815 games over 22 years. He won 511 games. About how many games did he win per year?
- MONEY** Each month, Kevin's car costs \$59 for insurance, \$42 for maintenance, and \$58 for gas. About how much does it cost Kevin to drive his car for a year?
- MONEY** How many ways can you make change for a dollar using nickels, dimes, and/or quarters?
- FOOD** Friday night Joe decided to order a 1-topping pizza. He had a choice of thin or thick crust and a choice of five toppings (pepperoni, mushrooms, sausage, onions, or peppers). How many different pizzas could he choose from?

Find the next term in each list.

- 7, 11, 15, 19, 23, ...
- 2, 4, 8, 16, 32, ...
- 63, 54, 45, 36, 27, ...
- 3, 0, 5, 3, 0, 5, ...
- 0, 4, 8, 12, 16, ...

GEOMETRY Draw the next figure in each pattern.

- △ □ □ △ △ □ □ □ ...

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1-2 Skills Practice***Numbers and Expressions***

Name the operation that should be performed first. Then find the value of each expression.

1. $2 - 3 \cdot 0$

2. $25 \div 5 - 4$

3. $5 + 2 - 3$

4. $2 \cdot 5 + 6$

5. $9 \div 3 \cdot 2 + 1$

6. $5 + 2 \cdot 8 + 2 - 5$

Find the value of each expression.

7. $4 + 2 \cdot 8$

8. $30 - 12 \cdot 2$

9. $5 + 2 \cdot 3 + 4$

10. $10 - 2 \cdot 4 - 1$

11. $15 - 10 \div 2$

12. $25 - 6 \cdot 4 + 9$

13. $(14 + 6) \div 5$

14. $100 + 50 \div 10$

15. $14 - (4 \cdot 2)$

16. $(3 + 4) \cdot (5 + 3)$

17. $6(4 + 5)$

18. $\frac{8 \cdot 9}{3 \cdot 4}$

19. $(2 + 3) \cdot 5 + 1$

20. $24 - 24 \div 8$

21. $56 \div (3 + 4)$

22. $2[(4 + 5) \cdot 3]$

Write a numerical expression for each verbal phrase.

23. the difference of seventeen and three

24. eleven more than six

25. the sum of eight, twenty, and thirty-five

26. the quotient of forty and eight

27. one hundred decreased by twenty-five

28. three more than one dozen

29. the product of twenty and thirty

30. five less than fifty

1-3 Skills Practice***Variables and Expressions*****ALGEBRA** Evaluate each expression if $x = 4$, $y = 6$, and $z = 3$.

1. $x + y + z$

2. $3x + y$

3. $x - z$

4. $x + y - 3z$

5. $15z$

6. $3(x + z)$

7. $xz \div y$

8. $yz - x$

ALGEBRA Evaluate each expression if $a = 7$, $b = 9$, $c = 2$, and $d = 5$.

9. $a + b + c$

10. $a + b - (c + d)$

11. $3a + 4d$

12. bcd

13. $(a + b) \cdot (c + d)$

14. $c(4 + d)$

15. $\frac{b}{a + c}$

16. $a + b - 3c$

17. $ab - cd$

18. $\frac{bc}{a - d}$

ALGEBRA Translate each phrase into an algebraic expression.

19. two inches shorter than Kathryn's height

20. the quotient of some number and thirteen

21. some number added to seventeen

22. six centimeters shorter than the length of the pencil

23. three pounds lighter than Adlai's weight

24. the difference of some number and eighteen

25. three dollars more than the cost of a ticket

26. eight more than the product of a number and four

27. half as many pieces of candy

28. twice as long as the length of the string

1-4 Skills Practice

Properties

Name the property shown by each statement.

1. $9 \cdot 7 = 7 \cdot 9$

2. $37 \cdot 0 = 0$

3. $1 \cdot 87 = 87$

4. $14 + 6 = 6 + 14$

5. $3(6a) = (3 \cdot 6)a$

6. $2b + 0 = 2b$

Find each sum or product mentally.

7. $4 + 23 + 46$

8. $327 \cdot 6 \cdot 0$

9. $2 \cdot 15 \cdot 10$

10. $5 \cdot 16 \cdot 20$

11. $14 + 24 + 6 + 26$

12. $43 + 38 + 7$

13. $25 \cdot 0 \cdot 8$

14. $11 + 28 + 19$

ALGEBRA Simplify each expression.

15. $(x + 5) + 4$

16. $(6a)10$

17. $38 + (v + 12)$

18. $8(3q)$

19. $16p \cdot 0$

20. $16 + (22 + x)$

21. $8(9p)$

22. $(17 + 33) + x$

23. $3(11k)$

24. $16 + (y + 9)$

25. $m(13 \cdot 5)$

26. $17 + (n + 0)$

1-5 Skills Practice**Variables and Equations****ALGEBRA** Find the solution of each equation from the list given.

1. $u + 11 = 42$; 29, 31, 33

2. $23 + w = 30$; 7, 8, 9

3. $18 + 17 = g$; 33, 34, 35

4. $s - 16 = 4$; 18, 20, 22

5. $17 - x = 2$; 13, 15, 17

6. $27 - 6 = d$; 17, 19, 21

7. $8r = 24$; 3, 4, 5

8. $16 = 4v$; 2, 3, 4

9. $\frac{42}{x} = 7$; 6, 8, 10

10. $\frac{x}{11} = 7$; 73, 75, 77

ALGEBRA Solve each equation mentally.

11. $c + 9 = 11$

12. $20 = f + 5$

13. $m - 6 = 3$

14. $24 - u = 18$

15. $6r = 36$

16. $8h = 40$

17. $p + 9 = 25$

18. $6 = \frac{30}{z}$

ALGEBRA Define a variable. Then write an equation and solve.

19. The product of 5 and a number is 50.

20. A number decreased by 3 is 9.

21. Eleven more than a number is 33.

22. Forty divided by a number is 8.

23. A number times 9 is 36.

24. A number divided by 7 is 7.

25. Thirty less than 40 is a number.

26. The difference between 20 and 8 is a number.

27. The sum of 4 and a number is 20.

28. The quotient of 50 and a number is 2.

2-1 Skills Practice***Integers and Absolute Value***

Replace each \circ with $<$, $>$, or $=$ to make a true sentence.

1. $1 \circ 0$

2. $-3 \circ 0$

3. $0 \circ -1$

4. $0 \circ 9$

5. $-7 \circ -7$

6. $2 \circ -2$

7. $-2 \circ 8$

8. $-4 \circ 4$

9. $5 \circ 5$

10. $0 \circ -6$

11. $4 \circ 10$

12. $6 \circ -6$

13. $3 \circ 7$

14. $-1 \circ -2$

15. $3 \circ 4$

16. $-3 \circ -4$

Order the integers in each set from least to greatest.

17. $\{4, -5, 0\}$

18. $\{8, -2, 1\}$

19. $\{-6, -3, 0\}$

20. $\{-5, 5, 3, -1\}$

21. $\{0, -3, 7, -2\}$

22. $\{9, -11, 1, 0\}$

23. $\{12, -4, 3, -1\}$

24. $\{-8, 15, 1, -10\}$

25. $\{-12, -17, -20, 2\}$

Evaluate each expression.

26. $|1|$

27. $|-10|$

28. $|-8|$

29. $|10|$

30. $|4| + |-4|$

31. $|9| - |-5|$

32. $0 + |-1|$

33. $|-6| + |-5|$

34. $|-8| - |-8|$

35. $|12| + |-3|$

36. $|-15| - |6|$

37. $|-13| + |-7|$

Evaluate each expression if $a = -3$, $b = 0$, and $c = 1$.

38. $|a| - b$

39. $|c| + 2$

40. $9 - |a|$

41. $|25| - b$

42. $10 - |b|$

43. $|-8| + |a|$

2-2 Skills Practice
Adding Integers

Find each sum.

1. $-7 + (-5)$

2. $10 + 9$

3. $-12 + (-5)$

4. $-13 + (-3)$

5. $-10 + 12$

6. $-7 + 8$

7. $-11 + (-6)$

8. $0 + (-21)$

9. $72 + (-10)$

10. $72 + 10$

11. $-13 + (-11)$

12. $-52 + 52$

13. $-6 + (-12)$

14. $14 + (-8)$

15. $-17 + (-2)$

16. $50 + (-8)$

17. $-22 + 4$

18. $14 + 8$

19. $-21 + (-9)$

20. $15 + (-5)$

21. $9 + 10$

22. $-12 + (-15)$

23. $-13 + 6$

24. $-1 + (-18)$

25. $0 + 31$

26. $-45 + (-15)$

27. $-6 + 20$

28. $24 + (-11)$

29. $7 + (-14)$

30. $-34 + (-10)$

31. $-8 + (-25)$

32. $-31 + 25$

33. $6 + 5 + (-4)$

34. $-4 + (-5) + 6$

35. $-3 + 8 + (-9)$

36. $-6 + (-2) + (-1)$

37. $10 + (-5) + 6$

38. $-8 + 8 + (-10)$

39. $0 + (-8) + 22$

40. $-31 + 19 + (-15)$

41. $32 + (-4) + (-9)$

2-3 Skills Practice
Subtracting Integers

Find each difference.

1. $-2 - (-8)$

2. $4 - (-11)$

3. $-7 - 6$

4. $15 - 2$

5. $-7 - (-1)$

6. $1 - 9$

7. $-5 - (-3)$

8. $6 - (-5)$

9. $-4 - (-10)$

10. $4 - 6$

11. $0 - (-15)$

12. $-16 - (-10)$

13. $0 - 16$

14. $11 - (-9)$

15. $-9 - 1$

16. $-1 - (-8)$

17. $1 - (-2)$

18. $-2 - (-19)$

19. $13 - 17$

20. $20 - (-15)$

21. $-10 - (-21)$

22. $4 - 22$

23. $-8 - 16$

24. $12 - (-9)$

Evaluate each expression if $a = -9$, $b = 4$, and $c = -5$.

25. $a - 8$

26. $10 - c$

27. $11 - b$

28. $15 - a$

29. $-8 - b$

30. $c - 1$

31. $-32 - a$

32. $b - 25$

33. $c - (-14)$

34. $-33 - a$

35. $14 - c$

36. $b - c$

37. $a - c$

38. $b - a$

39. $c - b$

40. $c - a$

41. $a - b$

42. $a + b - c$

43. $b + 15 + a$

44. $a - (-b) + c$

3-3 Skills Practice***Solving Equations by Adding or Subtracting***

Solve each equation. Check your solution.

1. $r + 1 = -5$

2. $h + 8 = 6$

3. $t - 3 = -11$

4. $p - 5 = 9$

5. $w + 9 = -9$

6. $x - 9 = -9$

7. $a + 7 = -7$

8. $m + 9 = -7$

9. $q - 4 = 5$

10. $b + 2 = 3$

11. $n - 11 = 1$

12. $r - 1 = -3$

13. $c + 6 = 1$

14. $v - 3 = -7$

15. $z + 3 = 0$

16. $s - 8 = -1$

17. $y - 7 = -5$

18. $u - 10 = -2$

19. $g + 1 = 10$

20. $k + 4 = -9$

21. $w + 12 = -4$

22. $z - 8 = -8$

23. $d - 11 = 1$

24. $h + 3 = 10$

25. $r + 10 = -6$

26. $y + 1 = 4$

27. $f - 6 = 6$

28. $d - 2 = -8$

29. $j + 11 = 4$

30. $m - 10 = 4$

31. $q + 3 = -5$

32. $g - 4 = 0$

33. $a - 12 = -19$

34. $c + 5 = 2$

35. $h - 9 = 12$

36. $p + 14 = -1$

37. $v + 13 = -11$

38. $x + 8 = -1$

39. $y + 12 = -10$

40. $k - 16 = 7$

41. $d - 15 = -14$

42. $g - 12 = 10$

43. $b + 13 = -20$

44. $f - 15 = -1$

45. $q + 8 = 13$

46. $w - 4 = -15$

47. $r + 10 = -13$

48. $t - 11 = 11$

49. $j - 9 = -8$

50. $k + 2 = -15$

51. $n + 12 = 0$

52. $y + 9 = 14$

3-4 Skills Practice***Solving Equations by Multiplying or Dividing***

Solve each equation. Check your solution.

1. $3x = 24$

2. $\frac{m}{-5} = -15$

3. $-4f = 16$

4. $\frac{u}{2} = 12$

5. $-6a = 6$

6. $\frac{s}{-1} = 10$

7. $-2y = -2$

8. $-7z = 7$

9. $\frac{n}{8} = -24$

10. $-4r = -12$

11. $-9h = 81$

12. $\frac{c}{-10} = 1$

13. $\frac{v}{-15} = -15$

14. $\frac{m}{12} = 0$

15. $-12g = 12$

16. $\frac{w}{-4} = 0$

17. $-1f = 11$

18. $\frac{r}{-1} = 22$

19. $8d = -16$

20. $\frac{r}{15} = 45$

21. $25k = -200$

22. $-3p = 18$

23. $7j = -63$

24. $\frac{y}{-10} = 10$

25. $\frac{x}{-8} = -1$

26. $5g = -20$

27. $\frac{p}{6} = 0$

28. $7y = 7$

29. $-6q = -30$

30. $-12c = -60$

31. $-9b = 90$

32. $-4k = -120$

33. $2r = 0$

34. $-1t = 19$

35. $\frac{n}{-12} = 12$

36. $-15j = 120$

37. $\frac{u}{-11} = 11$

38. $5c = 85$

39. $-9q = -36$

40. $9z = -144$

5-7 Skills Practice**Adding and Subtracting Unlike Fractions**

Find each sum or difference. Write in simplest form.

1. $\frac{4}{7} + \frac{1}{3}$
2. $\frac{2}{5} + \frac{3}{4}$
3. $\frac{1}{2} + \left(-\frac{3}{10}\right)$
4. $-\frac{5}{6} + \frac{7}{9}$
5. $\frac{5}{12} + \frac{23}{24}$
6. $\frac{10}{11} - \frac{1}{2}$
7. $\frac{4}{5} - \left(-\frac{1}{3}\right)$
8. $\frac{5}{6} - \frac{1}{12}$
9. $\frac{19}{20} + \frac{1}{4}$
10. $-\frac{9}{10} - \frac{1}{3}$
11. $\frac{13}{15} - \frac{2}{3}$
12. $\frac{7}{10} + \frac{1}{5}$
13. $-\frac{3}{8} + \frac{1}{6}$
14. $\frac{33}{100} - \frac{1}{10}$
15. $\frac{11}{12} - \left(-\frac{7}{8}\right)$
16. $\frac{4}{5} - \frac{1}{8}$
17. $5\frac{2}{3} + 2\frac{1}{6}$
18. $1\frac{7}{8} + 3\frac{1}{3}$
19. $3\frac{2}{3} - \frac{1}{9}$
20. $23\frac{3}{4} - 12\frac{5}{16}$
21. $-7\frac{1}{2} + \frac{3}{4}$
22. $2\frac{2}{3} + 1\frac{1}{4}$
23. $-12\frac{1}{2} - 17\frac{1}{2}$
24. $12\frac{1}{3} - \frac{3}{5}$
25. $11\frac{15}{16} - 7\frac{1}{2}$
26. $8\frac{5}{9} + 1\frac{1}{6}$
27. $-7\frac{1}{2} + 3\frac{1}{7}$
28. $60\frac{1}{2} + \left(-37\frac{1}{6}\right)$
29. $8\frac{2}{3} - 3\frac{1}{3}$
30. $-21\frac{7}{16} + 13\frac{1}{4}$

6-1 Skills Practice**Ratios and Rates**

Express each ratio as a fraction in simplest form.

- 8 pencils out of 12 pens
- 42 textbooks to 28 students
- 27 rooms to 48 windows
- 15 angel fish to 75 fish
- 75 cats to 100 dogs
- 6 aces out of 24 serves
- 3 gallons to 15 quarts
- 30 feet to 11 yards

Express each ratio as a unit rate. Round to the nearest tenth or nearest cent, if necessary.

- \$9 for 6 cans of soup
- \$39 for a case of 75 bananas
- 108 miles in 6 days
- 51 meters in 8 seconds
- 21 new pairs of sneakers in 7 years
- 52 feet for 8 costumes
- 40 sneezes in 20 minutes
- \$2702 from 28 people

Convert each rate using dimensional analysis.

- $12 \text{ m/min} = \underline{\quad? \quad} \text{ cm/s}$
- $8 \text{ qt/min} = \underline{\quad? \quad} \text{ gal/h}$
- $44 \text{ yd/s} = \underline{\quad? \quad} \text{ mi/h}$
- $10 \text{ c/min} = \underline{\quad? \quad} \text{ qt/h}$
- $32 \text{ ft/h} = \underline{\quad? \quad} \text{ yd/day}$
- $56 \text{ mi/h} = \underline{\quad? \quad} \text{ ft/min}$
- $40 \text{ cm/s} = \underline{\quad? \quad} \text{ m/min}$
- $180 \text{ in./min} = \underline{\quad? \quad} \text{ yd/h}$

6-3 Skills Practice**Using Proportions**

Determine whether each pair of ratios forms a proportion.

1. $\frac{1}{5}, \frac{4}{20}$

2. $\frac{3}{8}, \frac{12}{32}$

3. $\frac{4}{5}, \frac{9}{10}$

4. $\frac{12}{20}, \frac{18}{30}$

5. $\frac{3}{4}, \frac{27}{36}$

6. $\frac{10}{18}, \frac{2}{9}$

7. $\frac{4}{9}, \frac{2}{3}$

8. $\frac{15}{18}, \frac{10}{12}$

9. $\frac{15}{24}, \frac{3}{8}$

10. $\frac{36}{72}, \frac{50}{100}$

11. $\frac{10}{8.4}, \frac{5}{4.2}$

12. $\frac{12}{4.8}, \frac{9}{3.2}$

ALGEBRA Solve each proportion.

13. $\frac{8}{4} = \frac{t}{8}$

14. $\frac{n}{9} = \frac{4}{18}$

15. $\frac{3}{v} = \frac{12}{32}$

16. $\frac{25}{60} = \frac{s}{12}$

17. $\frac{21}{28} = \frac{3}{w}$

18. $\frac{c}{12} = \frac{5}{6}$

19. $\frac{4}{r} = \frac{5}{20}$

20. $\frac{12}{18} = \frac{m}{81}$

21. $\frac{2}{9} = \frac{6}{k}$

22. $\frac{h}{35} = \frac{3}{7}$

23. $\frac{3}{16} = \frac{u}{40}$

24. $\frac{6}{a} = \frac{1}{3}$

25. $\frac{e}{9.5} = \frac{6.4}{7.6}$

26. $\frac{2.7}{3.0} = \frac{3.6}{x}$

27. $\frac{1.68}{w} = \frac{7}{12}$

6-5 Skills Practice***Fractions, Decimals, and Percents***

Express each percent as a fraction or mixed number in simplest form and as a decimal.

1. 55%

2. 2%

3. $5\frac{1}{2}\%$

4. 30%

5. 300%

6. 12%

7. 50%

8. 90%

9. 85%

10. 28.2%

11. 0.25%

12. 0.2%

13. 7.5%

14. 6%

15. 10%

16. 275%

Express each decimal or fraction as a percent. Round to the nearest tenth percent, if necessary.

17. 0.65

18. 0.772

19. 0.6

20. 3.45

21. 0.47

22. 0.01

23. 22.6

24. 0.79

25. 0.28

26. 0.355

27. 0.0015

28. 44

29. $\frac{11}{20}$

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

31. $\frac{5}{8}$

32. $\frac{7}{5}$

33. $\frac{23}{4}$

34. $\frac{4}{5}$

35. $\frac{3}{25}$

36. $\frac{7}{3}$

37. $2\frac{3}{10}$

38. $\frac{1}{6}$

39. $\frac{300}{630}$

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