

# **Pre-Algebra Summer Packet - 2022**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Finding a Percent of a Number (Decimal Method)**

Change each percent to a decimal, then multiply by the other number in the problem. Follow the example.

1. What is 35% of 20?

$$35\% = 0.35$$

$$0.35 \cdot 20 = 7$$

6. What is 125% of 40?

2. What is 60% of 90?

7. What is 10% of 70?

3. What is 92% of 200?

8. What is 50% of 40?

4. What is 4% of 25?

9. What is 4.5% of 80?

5. What is 11% of 400?

10. What is 2% of 1000?

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### Adding and Subtracting Fractions

\*Make sure to find the common denominator first. Then create equivalent fractions with your common denominator before adding or subtracting the numerators! Use the “multiples” hint to find the Common Denominator.

$$\begin{array}{r} 1. \quad \frac{1}{5} = \frac{3}{15} \\ + \quad \frac{2}{3} = \frac{10}{15} \end{array} \quad \begin{array}{l} \diagup \\ \diagdown \end{array} \quad \frac{13}{15}$$

$$\begin{array}{r} 4. \quad \frac{1}{6} \\ + \quad \frac{1}{4} \end{array}$$

5: 5, 10, 15

3: 3, 6, 9, 12, 15

6: 6, 12

4: 4, 8, 12

$$\begin{array}{r} 2. \quad \frac{3}{5} = \frac{15}{35} \\ + \quad \frac{1}{7} = \frac{5}{35} \end{array}$$

$$\begin{array}{r} 5. \quad \frac{3}{10} \\ + \quad \frac{1}{6} \end{array}$$

5: 5, 10, 15, 20, 25, 30, 35

7: 7, 14, 21, 28, 35

10: 10, 20, 30

6: 6, 12, 18, 24, 30

$$\begin{array}{r} 3. \quad \frac{5}{8} \\ - \quad \frac{1}{3} \end{array}$$

$$\begin{array}{r} 6. \quad \frac{1}{2} \\ - \quad \frac{2}{5} \end{array}$$

8: 8, 16, 24

3: 3, 6, 9, 12, 15, 18, 24

2: 2, 4, 6, 8, 10

5: 5, 10

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**Word Problems – Addition or Subtraction?**

Solve each problem. Read carefully and look for key words to decide whether you should solve the problem by using *addition* or *subtraction*. You may use a calculator if you need to.

1. Steve had \$20. Jeff had \$10. What was the **total** amount of money they had?
  
  
  
  
  
  
  
  
  
  
2. Colin wants to save \$50 for a new video game. He has already saved \$35. **How much more** money does he need to save to reach his goal?
  
  
  
  
  
  
  
  
  
  
3. A classroom has 5 boys and 2 girls. How many students are there **all together**?
  
  
  
  
  
  
  
  
  
  
4. In the classroom with 5 boys and 2 girls, what is the **difference** between the amount of boys and girls in the classroom?
  
  
  
  
  
  
  
  
  
  
5. Kevin earned an 85 on a quiz. On his next quiz, his score **increased by 3** points. What was Kevin's score on his next quiz?

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### Addition/Subtraction Word Problems 2

**Read each problem carefully. Decide whether to use addition or subtraction to solve. Show your work. After you get your solution, re-read the problem and think about whether or not your answer makes sense.**

1. Natalie visits a grocery store to buy tomatoes. The cost of tomatoes is \$26. She remitted the bill and received \$4 in change from the cashier. How much did she pay the cashier?
2. Lara and Mae participated in a quiz contest. They scored 23 points in all. If Lara scored 9 points, how many points did Mae score?
3. John was gifted with a pack of crayons. Rhea borrowed 13 crayons and John was left with 12 crayons. How many crayons did the pack contain originally?
4. Smith and his friends are gaming online on a popular website. An hour later, 6 friends go offline. Five of them continue playing. How many of them were gaming online initially?
5. Trevor took up a school test, the duration of which was one hour. There were two sections to be answered. If he finished the first section in 35 minutes, how much time remained for him to complete the second section?

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### Do I Multiply or Divide?

There aren't *always* specific key words or phrases to use when looking at multiplying or dividing. One important thing to think of is if you are getting a total amount of something, you would usually use multiplication. If you are sharing or splitting something, or if you are getting a part out of a total amount, you would usually use division.

Also, if you use the wrong operation, you should notice that your answer usually won't make sense. When you get your solution, read the problem again and see if it makes sense!

1. Curtis worked at a job in high school where he made \$10 per hour. If he worked 5 hours in one day, how much money did he make for the day?
2. Jodi spent \$5 on cat food for each cat. If she has five cats, how much money did she spend on cat food?
3. Steve had a total of 30 students. He wanted to split his classes up into equal groups. If Steve had 6 classes, how many students were there per class?
4. Jeff read 51 pages of a book in 3 hours. How many pages did he read per hour?

**Multiply/Divide (continued)**

5. Leah took 50 steps per hour on Wednesday during school. If she was at school for 7 hours, how many total steps did she take?

6. Jack copied 20 worksheets in a school week. If he worked a regular 5-day week, how many worksheets did he copy per day?

7. Cheryl spent 3 days grading quizzes. If she graded 9 quizzes per day, how many quizzes did she grade during the 3 days?

8. Jon told his students to do research on all 50 states. If it took students 5 days to complete all their research, how many states did they work on per day?

9. Chad asked his students to shoot 40 baskets each day they had gym. How many baskets would a student shoot if they had 3 days of gym?

10. Martha wanted students to read 100 pages of a book in 5 days. How many pages would her students have to read per day?

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**Algebraic Expressions – Evaluating**

**For all problems, let  $x = 2$ ,  $y = 3$  and  $z = 5$**

1.  $z^2 =$

6.  $z^3 =$

2.  $y - x =$

7.  $3z + 2x =$

3.  $4y - x =$

8.  $5z - x =$

4.  $x + y + z =$

9.  $xy =$

5.  $z - y^2 =$

10.  $4z - (x + y) =$



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### Writing Algebraic Expressions

Translate each sentence into an algebraic expression. Look for key words in bold which tell you the correct mathematical operation to use. Follow the example.

1. The **sum** of  $x$  and 3

$$x + 3$$

2. The **difference** between  $y$  and 12
3. 5 **less than** a number  $z$
4. The **product** of  $x$  and 10
5. The **quotient** of  $y$  and 4
6. The **total** of  $x$  and 14
7. A number  $z$  **decreased** by 21
8. A number  $y$  **increased** by 16
9.  $x$  tickets at \$6 **each**
10. A number  $m$  **split into groups** of 4

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**One-Step Equation Solving**

**Solve each equation by using the inverse operation:**

1.  $x - 5 = 13$

6.  $12 + a = 23$

2.  $x - 10 = 21$

7.  $25 = z - 6$

3.  $3 + b = 11$

8.  $y + 100 = 200$

4.  $c + 17 = 30$

9.  $x + 3.5 = 18.5$

5.  $m - 15 = 15$

10.  $w + 8 = 3$

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### One-Step Equation Solving: Multiplication & Division

Do the *inverse* (opposite) operation in order to solve for the variable in each problem. Follow each example:

#### Multiplication Equation

#### Division Equation

$$5x = 10$$

$$\frac{y}{6} = 3$$

$$\frac{5x}{5} = \frac{10}{5} \text{ *divide each side}$$

$$(6) \frac{y}{6} = 3(6) \text{ *multiply each}$$

by 5

side by 6

$$10 \div 5 = 2, \text{ so } x = 2$$

$$3(6) = 18, \text{ so } y = 18$$

1.  $6x = 30$

6.  $\frac{x}{8} = 7$

2.  $\frac{x}{4} = 7$

7.  $20y = 40$

3.  $\frac{a}{6} = 2$

8.  $5g = 55$

4.  $10 = 2b$

9.  $\frac{x}{5} = 9$

5.  $10x = 90$

10.  $x^2 = 25$