

ALGEBRA 1
SUMMER PACKET

NAME:

PERIOD:

Welcome to Algebra 1

Algebra 1 requires students to think, reason, and communicate mathematically. The skills learned during the Algebra 1 curriculum will be used as a foundation in all subsequent math classes, such as geometry, Algebra 2, Pre-calculus, and Calculus.

Directions:

- The summer packet contains material learned during the Pre-Algebra curriculum. Because these lessons are pre-requisites for Algebra 1 then I expect students to get master on them. Algebra 1 curriculum does not include these lessons.
- Students will find videos to help them to remember each lesson.
- Students MUST solve EVEN NUMBERS only from each section.
- Students MUST show their work for each problem of this review packet. Each problem should be worked through to its entirety, and correctly; not just attempted.
- The packet will be student's the first grade for the new school year.
- Each student should be prepared to have the summer packet completed and ready to checked during the first week of school.
- Over the course of the first two weeks of the beginning of the school year, the packet will be reviewed, and an assessment will be given as the first test grade of the new school year.
- Do not wait until last minute to do it, remember that you will be tested on these lessons.
- Organize your time wisely. For example, you can do a lesson per week. Then you will have plenty of time to finish before the new school year starts.

Have a blast and bless summer!



Fractions operations

Find the missing value which will make each pair of fractions equal:

Watch the following video if you need help: <https://www.youtube.com/watch?v=AtBUQH8Tkqc>

(1) $\frac{1}{2} = \frac{\quad}{18}$ (2) $\frac{2}{3} = \frac{\quad}{12}$ (3) $\frac{3}{11} = \frac{\quad}{33}$ (4) $\frac{3}{4} = \frac{27}{\quad}$

(5) $\frac{5}{7} = \frac{40}{\quad}$ (6) $\frac{1}{3} = \frac{\quad}{27}$ (7) $\frac{4}{9} = \frac{\quad}{45}$ (8) $\frac{5}{6} = \frac{40}{\quad}$

(9) $\frac{2}{5} = \frac{6}{\quad}$ (10) $\frac{6}{7} = \frac{18}{\quad}$ (11) $\frac{7}{11} = \frac{21}{\quad}$ (12) $\frac{1}{5} = \frac{8}{\quad}$

(13) $\frac{1}{4} = \frac{8}{\quad}$ (14) $\frac{1}{6} = \frac{8}{\quad}$ (15) $\frac{5}{8} = \frac{\quad}{48}$ (16) $\frac{4}{5} = \frac{40}{\quad}$

(17) $\frac{1}{9} = \frac{6}{\quad}$ (18) $\frac{7}{9} = \frac{14}{\quad}$ (19) $\frac{7}{8} = \frac{\quad}{32}$ (20) $\frac{3}{10} = \frac{\quad}{40}$

Simplify fractions:

(1) $\frac{14}{21} =$ (2) $\frac{24}{7} =$ (3) $\frac{44}{16} =$ (4) $\frac{35}{10} =$

(5) $\frac{2}{8} =$ (6) $\frac{55}{30} =$ (7) $\frac{70}{25} =$ (8) $\frac{12}{5} =$

(9) $\frac{48}{21} =$ (10) $\frac{2}{6} =$ (11) $\frac{8}{5} =$ (12) $\frac{11}{5} =$

(13) $\frac{7}{6} =$ (14) $\frac{3}{21} =$ (15) $\frac{78}{42} =$ (16) $\frac{84}{49} =$

(17) $\frac{24}{42} =$ (18) $\frac{14}{49} =$ (19) $\frac{2}{4} =$ (20) $\frac{7}{14} =$

(21) $\frac{23}{6} =$ (22) $\frac{30}{35} =$ (23) $\frac{65}{20} =$ (24) $\frac{20}{6} =$

Adding fractions: If you need help then watch this video <https://www.youtube.com/watch?v=N-Y0Kvcnw8g>

$$(1) \frac{1}{24} + \frac{5}{8} =$$

$$(2) \frac{3}{10} + \frac{1}{2} =$$

$$(3) \frac{5}{12} + \frac{1}{3} =$$

$$(4) \frac{3}{20} + \frac{1}{4} =$$

$$(5) \frac{1}{6} + \frac{7}{12} =$$

$$(6) \frac{1}{6} + \frac{1}{3} =$$

$$(7) \frac{1}{2} + \frac{1}{6} =$$

$$(8) \frac{5}{6} + \frac{1}{30} =$$

$$(9) \frac{1}{6} + \frac{1}{2} =$$

$$(10) \frac{7}{30} + \frac{1}{6} =$$

$$(11) \frac{1}{4} + \frac{7}{12} =$$

$$(12) \frac{1}{18} + \frac{1}{9} =$$

$$(13) \frac{1}{30} + \frac{5}{6} =$$

$$(14) \frac{7}{12} + \frac{1}{6} =$$

Subtracting fractions:

$$(1) \frac{5}{6} - \frac{1}{18} =$$

$$(2) \frac{1}{4} - \frac{1}{12} =$$

$$(3) \frac{9}{20} - \frac{1}{5} =$$

$$(4) \frac{11}{18} - \frac{1}{6} =$$

$$(5) \frac{4}{9} - \frac{5}{18} =$$

$$(6) \frac{1}{2} - \frac{1}{10} =$$

$$(7) \frac{5}{8} - \frac{7}{24} =$$

$$(8) \frac{5}{18} - \frac{1}{6} =$$

$$(9) \frac{11}{20} - \frac{1}{4} =$$

$$(10) \frac{1}{2} - \frac{1}{6} =$$

$$(11) \frac{1}{2} - \frac{3}{10} =$$

$$(12) \frac{19}{24} - \frac{1}{8} =$$

$$(13) \frac{7}{10} - \frac{1}{5} =$$

$$(14) \frac{5}{12} - \frac{1}{4} =$$

Multiplying fractions:

Do not forget to **simplify** before to multiply. Please check the following video if you do not remember how to simplify fractions <https://www.youtube.com/watch?v=UacpcSkBhbM>

(1) $\frac{1}{2} \times \frac{3}{5} =$ (2) $\frac{5}{8} \times \frac{2}{3} =$ (3) $\frac{1}{3} \times \frac{2}{3} =$ (4) $\frac{3}{10} \times \frac{2}{3} =$

(5) $\frac{2}{3} \times \frac{2}{5} =$ (6) $\frac{1}{3} \times \frac{8}{9} =$ (7) $\frac{1}{12} \times \frac{1}{2} =$ (8) $\frac{1}{3} \times \frac{7}{10} =$

(9) $\frac{2}{3} \times \frac{1}{4} =$ (10) $\frac{1}{4} \times \frac{4}{7} =$ (11) $\frac{1}{7} \times \frac{2}{5} =$ (12) $\frac{3}{4} \times \frac{2}{9} =$

(13) $\frac{1}{4} \times \frac{1}{6} =$ (14) $\frac{1}{8} \times \frac{1}{5} =$ (15) $\frac{1}{2} \times \frac{4}{7} =$ (16) $\frac{1}{3} \times \frac{2}{13} =$

(17) $\frac{3}{4} \times \frac{1}{9} =$ (18) $\frac{1}{3} \times \frac{9}{10} =$ (19) $\frac{2}{3} \times \frac{1}{2} =$ (20) $\frac{7}{9} \times \frac{3}{4} =$

Dividing fractions:

Apply the Keep Change Flip (KCF) rule. If you need help watch the following video: <https://www.youtube.com/watch?v=4lkq3DgvmJo>

(1) $\frac{1}{2} \div \frac{5}{6} =$ (2) $\frac{9}{14} \div \frac{1}{2} =$

(3) $\frac{7}{12} \div \frac{1}{3} =$ (4) $\frac{1}{7} \div \frac{1}{3} =$

(5) $\frac{5}{7} \div \frac{1}{2} =$ (6) $\frac{1}{4} \div \frac{2}{5} =$

(7) $\frac{11}{12} \div \frac{1}{3} =$ (8) $\frac{1}{3} \div \frac{5}{9} =$

(9) $\frac{1}{3} \div \frac{3}{4} =$ (10) $\frac{1}{12} \div \frac{2}{3} =$









(11) $\frac{3}{8} \div \frac{1}{5} =$ (12) $\frac{1}{2} \div \frac{3}{13} =$

(13) $\frac{1}{3} \div \frac{2}{5} =$ (14) $\frac{2}{3} \div \frac{1}{3} =$

Integer numbers

Addition and subtraction:

RULES FOR ADDING INTEGERS

Signs of Integers	Operation to Use	Answer Sign	Quick Example
 + 	Add	Positive (+)	$4+3=7$
 + 	Add	Negative (-)	$(-5)+(-3)=-8$
 + 	Subtract	Use the SIGN of the integer with BIGGER absolute value	$6+(-2)=4$
 + 	Subtract		$(-9)+(4)=-5$

© CHILIMATH

If you still need help watch the following video: https://www.youtube.com/watch?v=_BgblvF90UE

1:

$$5 + 12$$

2:

$$-5 + (-5)$$

3:

$$9 - 8$$

4:

$$-6 - 1$$

5:

$$-4 + 10$$

6:

$$-12 + 5$$

7:

$$-10 - (-5)$$

8:

$$-12 - 1$$

9:

$$-9 - 7$$

10:

$$-12 - 5$$

11:

$$-7 - (-6)$$

12:

$$-12 + (-7)$$

Basic operations: Multiplication and division rules

Division of integers

Same signs { $12 \div 6 = 2$
 $-12 \div -6 = 2$

Different signs { $12 \div -6 = -2$
 $-12 \div 6 = -2$

(1) $-12 \times -6 =$

(2) $-22 \times 16 =$

(3) $9 \times 24 =$

(4) $7 + 45 =$

(5) $16 + -24 =$

(6) $24 \times 24 =$

(7) $-36 - 35 =$

(8) $18 - 15 =$

(9) $-14 \times 17 =$

(10) $12 + 4 =$

(11) $-105 \div 15 =$

(12) $14 \times -18 =$

(13) $11 + 9 =$

(14) $37 - -3 =$

(15) $-3 + 24 =$

(16) $7 + -4 =$

(17) $45 - 41 =$

(18) $44 + 43 =$

(19) $15 \times -10 =$

(20) $13 + -22 =$

(21) $6 \times 10 =$

(22) $29 + 12 =$

(23) $-21 + -43 =$

(24) $-184 \div 8 =$

(25) $14 \times 18 =$

(26) $15 + 17 =$

(27) $48 - 21 =$

(28) $38 - -32 =$

(29) $-320 \div -20 =$

(30) $-168 \div 8 =$

(31) $-432 \div -18 =$

(32) $-26 + -18 =$

(33) $-13 \times -9 =$

(34) $240 \div 16 =$

(35) $-320 \div -20 =$

(36) $-21 \times 14 =$

(37) $-108 \div -6 =$

(38) $-168 \div 24 =$

(39) $-13 + 29 =$

Powers and Exponents

1) $(2)^3 = \underline{\hspace{2cm}}$

11) $(-6)^0 = \underline{\hspace{2cm}}$

2) $(5)^3 = \underline{\hspace{2cm}}$

12) $(-9)^0 = \underline{\hspace{2cm}}$

3) $(12)^3 = \underline{\hspace{2cm}}$

13) $(8)^2 = \underline{\hspace{2cm}}$

4) $(-10)^2 = \underline{\hspace{2cm}}$

14) $(3)^2 = \underline{\hspace{2cm}}$

5) $(-3)^0 = \underline{\hspace{2cm}}$

15) $(-7)^2 = \underline{\hspace{2cm}}$

6) $(4)^3 = \underline{\hspace{2cm}}$

16) $(-2)^3 = \underline{\hspace{2cm}}$

7) $(9)^0 = \underline{\hspace{2cm}}$

17) $(-3)^0 = \underline{\hspace{2cm}}$

Order of Operations

How Do I Remember It All ... ? PEMDAS !

- P** Parentheses first
- E** Exponents (ie Powers and Square Roots, etc.)
- MD** Multiplication and Division (left-to-right)
- AS** Addition and Subtraction (left-to-right)

Divide and Multiply rank equally (and go left to right).

Add and Subtract rank equally (and go left to right)

PEMDAS without parenthesis:

1) $9 \times 7 - 12 \div 2$

6) $15 \div 5 - 4 \times 2$

2) $13 \times 10 \div 2 - 1$

7) $5 + 18 \times 12 \div 3$

3) $20 \div 10 \times 14 - 3$

8) $24 \div 6 \times 19 - 13$

4) $20 \div 5 - 1 + 10$

9) $10 \div 2 \times 4 + 11$

5) $8 - 7 \times 14 + 12$

10) $8 \times 16 \div 2 - 1$

PEMDAS with parenthesis:

$$1) (35 - 3) \div 16 + 3^2$$

$$6) 3 \times (10 - 5) - 4^2$$

$$2) (3 \times 2 - 7^2) - 2$$

$$7) 4 \times (10 - 2) + 2^2$$

$$3) (34 - 2) \div 16 - 6^2$$

$$8) (56 - 4^2) \div (23 - 3)$$

$$4) (10 + 3)^2 + (24 \div 3)$$

$$9) (34 - 2^2) \div (-5 + 7)$$

Simplifying expressions

Please watch the following video before to solve the questions:

<https://www.youtube.com/watch?v=eNv4fHb7OvU>

1) $8p + 6p - 9$

6) $-6z + 8 + 4 + 9z$

2) $6c + c$

7) $6 + 7k + 5k$

3) $2 - 9q + 4q$

8) $2 - 6q + 5 + 9q$

4) $8q - q$

9) $9c + 8 - 4c - 5$

5) $5 - 3 + 2p + 8p$

10) $8n - 3n$

Distributive Property

Please watch the following video before to answer the questions: <https://www.youtube.com/watch?v=v-6MShC82ow>

1) $5(-7 + 6r) - 9r$

6) $-6(-4b - 7)$

2) $9 + 5(-4 - 6f)$

7) $-3(2 + 7x)$

3) $-6(7 - 8q)$

8) $6(-2 - 5k) + 9$

4) $3(-2x + 8)$

9) $-9(-2q + 5)$

5) $6y - 9(-7 + 2y)$

10) $4(9h - 8) + 2$