

Summer Review

For Students Entering

Pre-Algebra

Dear Parents and Students,

This packet is designed to provide a review of math skills that were taught during previous middle school courses. Students entering Pre-Algebra will still need understanding of these skills in Algebra I and Algebra II later on. This packet is designed to be a refresher of those skills so students can be well prepared as they enter Pre-Algebra.

DIRECTIONS:

Student will need to use pencil and show work on lined paper or in the packet. All work must accompany the completed packet in order to receive full credit.

RESOURCES:

In addition to the instruction and examples included in the packet, here are some websites that provide additional assistance:

- www.ixl.com
- www.khanacademy.org

GRADING:

Students are expected to bring the completed packet with all work shown to school on the first day. Teachers will collect the work and award a completion grade for homework. Teachers will return the work and provide correct answers as well as go over any questions students may have in class.

* Get the variable by itself

- Do the inverse (opposite) operation to both sides of the equation to eliminate the number next to the

Solve the equation.

Work Space

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Variable.
(letter)

Example

$$\text{--- 1) } \frac{12x}{12} = \frac{108}{12}$$

$$\boxed{x = 9}$$

$$\text{--- 2) } \frac{1}{3}b = \frac{2}{3}$$

- Divide both sides by 12

$$\text{--- 3) } n - 45 = 12$$

$$\text{--- 4) } \frac{x}{9} = -4$$

$$\text{--- 5) } \frac{1}{2} + x = \frac{3}{4}$$

$$\text{--- 6) } -36 = 6r$$

$$\text{--- 7) } \frac{2}{5}x = 1\frac{3}{5}$$

$$\text{--- 8) } 25 - 3x = 13$$

$$\text{--- 9) } \frac{5}{8} = \frac{n}{40}$$

$$\text{--- 10) } \frac{3}{x} = \frac{12}{18}$$

* Add/Subtract: need a common denominator

* Multiply: multiply straight across (top # by top #, bottom # by bottom #)

* Divide: keep, change, flip! (keep 1st fraction, change \div to \times , flip second fraction)
Fractions: Find the sum, difference, product or quotient, as the sign indicates.

LCD: Least Common Denominator is 20

Example

$$\text{---11) } \frac{5 \cdot 3}{5 \cdot 4} + \frac{2 \cdot 4}{5 \cdot 4}$$

$$\frac{15}{20} + \frac{8}{20} = \frac{23}{20} \text{ or } 1 \frac{3}{20}$$

$$\text{---12) } 5 \cdot \frac{2}{5}$$

$$\text{---13) } 12 \frac{1}{2} \div 3 \frac{1}{8}$$

$$\text{---14) } \frac{3}{5} - \frac{3}{6}$$

$$\text{---15) } \frac{4}{9} \div 6 \frac{2}{3}$$

$$\text{---16) } \frac{2}{3} \div \frac{4}{15}$$

$$\text{---17) } 12 \frac{1}{2} \div 3 \frac{3}{4}$$

$$\text{---18) } 4 \frac{3}{5} + 7 \frac{2}{3}$$

* Add, subtract, multiply, or divide as indicated

• means multiply

Integers: Find the sum, difference, product or quotient, as the sign indicates.

Example

___19) $3 + (-12) + 7$

$-9 + 7$

-2

___20) $3 \cdot (-24)$

___21) $-8 - (-15)$

___22) $-15 \cdot (-6)$

___23) $-5 + (-4) + 3$

___24) $-5 - 7$

___25) $-2 + (-8)$

___26) $27 - 36$

___27) $-4 \cdot (-5) \cdot 6$

___28) $45 + (-32) + (-24)$

___29) $48 \div (-16)$

___30) $-15 \div (-5)$

* Order of Operations (PEMDAS)

Parenthesis, Exponents, Multiply/Divide, Add/Subtract

Algebra: Simplify the following expressions.

Example

___31) $2 \cdot 6^2 - 26 \div 2$

$2 \cdot 36 - 26 \div 2$

$72 - 26 \div 2$

59

___32) $2y^3 - 3y^3 + 3y^3 - 4y^3$

___33) $3a + 4a^2 - 2a + 7a^2$

___34) $2 + 5 \cdot 3 - 4^2$

___35) $(3 + 2)^2 - 5$

Evaluate the following.

Example

___36) $3p - 5q$ if $p=4$ and $q=2$

$3(4) - 5(2)$

$12 - 10$

2

___37) $g^2 + 11$ when $g=11$

___38) $6n + 9 + 8n$ when $n = -3$

* Substitute numbers for appropriate variable (letter) then simplify

* Do not need to solve, change words to math expression

Translate the following verbal expressions into algebraic or numerical expressions.

Example

18 - 26 39) the difference of 18 and 26

_____ 40) the quotient of 16 and 12

_____ 41) 7 less than 18

_____ 42) the sum of 7 times a number and 4

_____ 43) the product of 3 and a number

_____ 44) the quotient of a number and 8

_____ 45) a number decreased by 7

_____ 46) 17 less a number

_____ 47) the difference of 12 and 3 time a number

* Absolute value is how far a number is from 0 (it is always positive)
Absolute Value: Evaluate the following absolute value expressions.

___ 48) $-|39|$

___ 49) $|-15| + |8|$

___ 50) $|-6|$

*Add, subtract, multiply, or divide as indicated

Decimals: Find the sum, difference, product or quotient, as the sign indicates.

Example

$$\begin{array}{r} \text{___} 51) 8.54 + 7 \\ \quad 8.54 \\ + \quad 7.00 \\ \hline \boxed{15.54} \end{array}$$

___ 52) $8 - 3.8$

___ 53) $9.4 \cdot 3.2$

___ 54) $9.328 \div 4.4$

___ 55) $2.56 \div 0.032$

___ 56) $24.38 - 18.953$

___ 57) $5.27 - 2.7$

___ 58) $6.35 \cdot 5.2$

Mixed Problem Solving

Example $35 \cdot x$ 59) Henry makes birdhouses. It takes him 35 minutes to make a birdhouse. Write an expression that shows how long it takes him to make x birdhouses.

35 min per birdhouse \times

35 times \times

_____ 60) A new mystery novel will cost Mary \$26.60. If she earns \$6.65 an hour, how many hours will she have to work in order to purchase it?

_____ 61) Laura paid \$9.35 for 3.4 pounds of ground beef. How much does one pound of ground beef cost?

_____ 62) When climbing out of Death Valley, Amy climbed from 256 feet below sea level to 834 feet above sea level. How far did she climb?

_____ 63) It takes Blanche 36 minutes to walk two miles. How long will it take her to walk 7 miles?

_____64) Brendan paid \$144 for 3 college credits. Find the unit rate in fraction form.

_____65) The angles of a triangle add up to 180° . If two angles are 57° and 84° , what is the measure of the third angle?

_____66) The Math Club has 8 boys, 12 girls, and 2 advisors. What is the ratio of boys to girls? Write your answer as a fraction in simplest form.

_____67) Fifteen percent of hockey stick sales are to women. If 220 sticks were sold, how many were purchased by women?

_____68) Alicia spent \$8.25 of her paycheck. If this was 15% of her paycheck, how much was she paid?

_____69) A \$145 scooter is on sale at 20% off. What is the sale price?

____70) How much simple interest will Sean earn on an investment of \$200 if he invests for 3 years at 8% interest?

____71) Fred bought three books for \$12.95, \$18.50, and \$23.48. What was the average price of his books?

____72) A grocery store sells 16 pounds of beans for \$9.60. What is the unit rate?

____73) If the price of gold went from \$460 an ounce to \$483 an ounce, what was the percent of change in the price of gold?

____74) Mr. Green just spent \$11.95 on a haircut. About how much should he leave for a 15% tip?

____75) Sales tax is 7.25%. How much will a \$60 pair of jeans cost, including the tax?