This is the summer math packet for students entering 8th grade **Pre- Algebra 2**. The summer packet will be counted as one test grade. This packet is due back by Friday of the first week of school. Your child needs to show their work for each problem. No credit will be given if students do not show their work. There is an answer key so you can check their work.

Packet 1	Packet 2	Packet 3	Packet 4
1. A	1. D	1. B	1. B
2. D	2. D	2. A	2. C
3. D	3. C	3. A	3. B
4. C	4. C	4. C	4. C
5. A	5. D	5. A	5. A
6. B	6. C	6. A	6. C
7. C	7. B	7. D	7. A
8. C	8. D	8. C	8. A
9. D	9. C	9. D	9. C
10. A	10. B	10. B	10. C
11. B	11. D	11. B	11. C
12. A	12. D	12. B	12. C
13. A	13. C	13. B	13. B
14. C	14. C	14. A	14. C
15. D	15. C	15. D	15. A
16. A	16. A	16. B	16. A
17. A	17. B	17. B	17. C
18. A	18. C	18. D	18. A
19. B	19. D	19. C	
20. B	20. A	20. B	
21. D	21. C	21. C	
22. C	22. A		
23. D	23. D		
24. C	24. A		
25. B	25. C		
26. B	26. A		

8th Grade Pre-Algebra 2 Packet 1

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Identify the expression as a *numerical expression* or a *variable expression*. For a variable expression, name the variable.

____ 1. $1 \cdot 12$
a. numerical expression
b. variable expression; *a* is the variable.
c. variable expression; there is no variable.
d. variable expression; *l* is the variable.

____ 2. $f \div 7$
a. variable expression; there is no variable.
b. numerical expression
c. variable expression; *g* is the variable.
d. variable expression; *f* is the variable.

Simplify.

____ 3. $3 - 15 \cdot 5$
a. 0 b. 78 c. 90 d. –72

____ 4. $[2 \cdot (10 + 5)] - 5$
a. 12.5 b. 20 c. 25 d. 120

Evaluate.

____ 5. $6t - 6$, for $t = 6$
a. 30 b. 43 c. 42 d. 29

____ 6. $47 + 2d$, for $d = 3$
a. 138 b. 53 c. 139 d. 54

____ 7. $a \div 4$, for $a = 32$
a. 9 b. 6 c. 8 d. 7

Compare. Use >, <, or = to complete the statement.

____ 8. $|10|$ ☐ –6
a. = b. < c. >

____ 9. What integer can be represented by 16 positive tiles and 26 negative tiles?
a. 42 b. –6 c. 10 d. –10

____ 10. The temperature in your town is 31°F. The radio announcer says that the temperature will drop 15 degrees. Write an expression to compute the predicted temperature. What will the temperature be?

a. 31 + (–15); 16°F
b. 15 + (–31); –16°F
c. 15 + 31; 46°F
d. 31 + 15; 22°F

____ 11. A submarine at the surface dives 375 ft and then another 175 ft. Express the final depth as an integer.

a. –525 ft
b. –550 ft
c. 550 ft
d. 525 ft

Simplify the product.

____ 12. 4(–7)

a. –28
b. –30
c. –26
d. 16

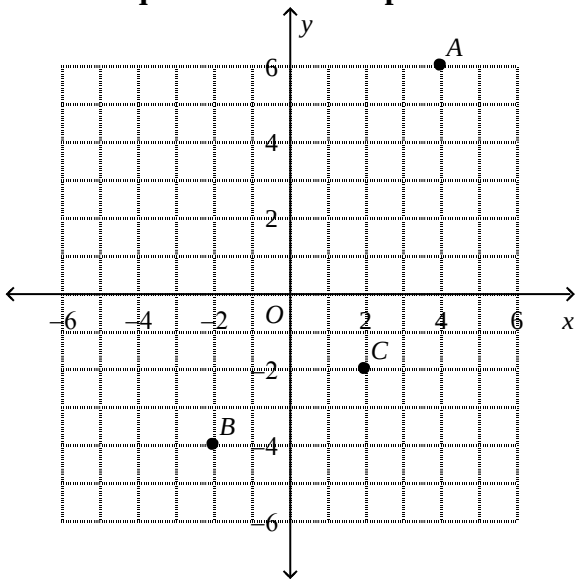
____ 13. $-4 \cdot 10 \cdot 6$

a. –240
b. –241
c. –238
d. –40

____ 14. Find the quotient –88 ÷ 11.

a. –10
b. –7
c. –8
d. –3

In which quadrant does the point lie? Write the coordinates of the point.



____ 15. *C*

a. quadrant IV; (–2, 2)
b. quadrant III; (–2, 2)
c. quadrant III; (2, –2)
d. quadrant IV; (2, –2)

____ 16. Suppose you average 52 mi/h traveling on the highway. If you drive for 5 hours, how far will you travel?

a. 260 miles
b. 250 miles
c. 350 miles
d. 240 miles

Simplify the expression.

____ 17. $6(6) + 6(4)$

a. 60 b. 10 c. 16 d. 12

____ 18. $3x + 3x$

a. $6x$ b. $9x$ c. $6x^2$ d. 6

____ 19. $7d + 12 - 4d - 3$

a. $19d - 7$ b. $3d + 9$ c. $3d^2 + 9$ d. $12d$

____ 20. Name the coefficients in the expression $4x + 9 - y$.

a. 4, 9, 0 b. 4, –1 c. 4 d. 9

____ 21. Name the constant(s) in the expression $7x + 9y + 3$.

a. x and y b. 7 c. 9 d. 3

Solve the equation.

____ 22. $8{,}000g = 48{,}000$

a. 40,000 b. 60 c. 6 d. 600

____ 23. Write an equation for the sentence below. Then solve the equation.

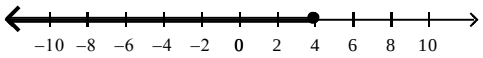
Thirteen multiplied by h is one hundred and four.

a. $13h = 104$; 91
b. $104h = 13$; $\frac{1}{8}$
c. $13 \cdot 104 = h$; 1,352
d. $13h = 104$; 8

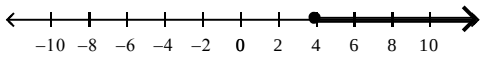
Solve the inequality. Graph the solutions.

____ 24. $a + 4 \geq 8$

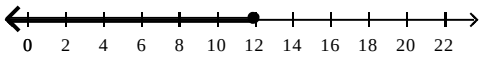
a. $a \leq 4$



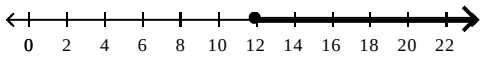
c. $a \geq 4$



b. $a \leq 12$



d. $a \geq 12$



Solve the inequality.

____ 25. $5n > -25$

a. $n > -20$ b. $n > -5$ c. $n > 30$ d. $n < -5$

____ 26. $\frac{r}{6} \leq 3$

a. $r \geq 18$ b. $r \leq 18$ c. $r \leq \frac{1}{2}$ d. $r \leq 9$

8th Grade Pre-Algebra 2 Packet 2

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Round 1<u>8</u>.79 to the underlined place.
a. 18 b. 17 c. 20 d. 19

____ 2. Estimate $11.49 - 5.15$ by rounding before you add or subtract.
a. about 8 b. about 7 c. about 5 d. about 6

____ 3. James received a box of supplies in his craft class, as shown in the table. Estimate the total mass of the supplies by rounding to the nearest unit.

Item	Mass (g)
Scissors	78.1
Markers	21.3
Tape Measure	32.6
Paper	56.6

a. about 187 g b. about 188 g c. about 189 g d. about 193 g

____ 4. Estimate $80.8 \div 8.9$ using compatible numbers.
a. about 8 b. about 10 c. about 9 d. about 11

____ 5. The formula $F = \frac{n}{4} + 37$ estimates the temperature F in degrees Fahrenheit when crickets chirp n times per minute. Use the formula to estimate the temperature when $n = 75$ chirps/min. Round to the nearest whole number, if necessary.
a. 58°F b. 53°F c. 52°F d. 56°F

Solve the equation.

____ 6. $33 = p - 6.71$
a. –39.71 b. –26.29 c. 39.71 d. 26.29

____ 7. $2.5 = d - (-20)$
a. 22.5 b. –17.5 c. 17.5 d. –22.5

____ 8. $\frac{m}{-4} = -2.95$
a. 1.05 b. 0.74 c. –6.95 d. 11.8

____ 9. You buy a shirt that costs $9.95. With tax, you pay $10.65. Write and solve an equation to find the amount of tax x you paid.
a. $9.95 - x = 10.65$; $0.70 c. $9.95 + x = 10.65$; $0.70
b. $9.95 + 10.65 = x$; $20.60 d. $10.65 - x = 9.95$; $0.70

____ 10. Ichiro Suzuki's batting average in 2001 was .350. The all-time American League leading hitter was George Sisler of St. Louis in 1922. Write and solve an equation to find Sisler's batting average that year, given that his average x was .072 more than Ichiro Suzuki's average in 2001.

a. $x - .350 = .072$; .278
c. $x - .072 = .350$; .422
b. $x + .072 = .350$; .278
d. $x + .072 = .350$; .422

____ 11. A baseball player was at bat 428 times in one season, and had a batting average of .344. The batting average formula is $a = \frac{h}{n}$, where a is the batting average, h is the number of hits, and n is the number of times at bat. Use the formula to find the number of hits the baseball player made.

a. 135 hits
b. 128 hits
c. 144 hits
d. 147 hits

____ 12. The mass of 1 cubic centimeter of copper is about 8.9 g. About how many kilograms is the mass of 100 cubic centimeters of copper?

a. 890 kg
b. 8.9 kg
c. 0.0089 kg
d. 0.89 kg

____ 13. The height of a mountain is 6,384 meters. What is its height in millimeters?

a. 6.384 mm
b. 63.84 mm
c. 6,384,000 mm
d. 638,400 mm

Simplify.

____ 14. $5 + \left(5^4 + 8\right)$

a. 104976
b. 10008
c. 638
d. 28566

____ 15. $\frac{4^5}{4^2}$

a. 1,048,576
b. 16,384
c. 64
d. 16

Evaluate.

____ 16. $y^2 + 2y + 5$ for $y = -5$

a. 20
b. 230
c. –15
d. 25

Find the GCF.

____ 17. $14abc$ and $28a^2b^2c^3$

a. 14
b. $14abc$
c. $28abc$
d. $28a^3b^3c^4$

____ 18. 8, 10, and 15

a. 64
b. 80
c. 120
d. 150

____ 19. Write $\frac{12gh}{36g^2h^3}$ in simplest form.

a. $\frac{1}{3h^2}$ b. $\frac{1}{3}gh$ c. $\frac{1}{2gh^2}$ d. $\frac{1}{3gh^2}$

____ 20. 3 candidates run for president of the club and 5 candidates run for vice-president. How many different possibilities for filling the two positions are there?
a. 15 b. 5 c. 8 d. 3

Evaluate. Write in simplest form.

____ 21. $\frac{x}{y}$ for $x = 4$ and $y = 4$
a. –1 b. –1 c. 1 d. 1

____ 22. $\frac{y - x}{z}$ for $x = 4$, $y = 64$, and $z = 3$
a. 20 b. 21 c. 22 d. 30

____ 23. $\frac{6 - b}{3a}$ for $a = 10$, $b = -9$
a. $\frac{1}{10}$ b. $-\frac{3}{10}$ c. 2 d. $\frac{1}{2}$

Simplify the expression.

____ 24. $x^7 \cdot y^3 \cdot x^8 \cdot y^2$
a. $x^{15} \cdot y^5$ b. $x^{15} \cdot y^6$ c. $x^{56} \cdot y^5$ d. $x^{56} \cdot y^6$

Compare. Use <, >, or = to complete the statement.

____ 25. $25^2 \underline{?} \left(5^2\right)^2$
a. > b. < c. =

____ 26. $\left(2^7\right)^2 \underline{?} \, 2^{10} \cdot 2^2$
a. > b. < c. =

8th Grade Pre-Algebra 2 Packet 3

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Find the least common multiple.

____ 1. 5 and 2
a. 7 b. 10 c. 2 d. 20

Use a number line to compare the fractions. Use <, >, or =.

____ 2. $-\frac{6}{7} \square -\frac{1}{7}$
a. $-\frac{6}{7} < -\frac{1}{7}$ b. $-\frac{6}{7} > -\frac{1}{7}$ c. $-\frac{6}{7} = -\frac{1}{7}$

____ 3. Order $\frac{-1}{3}$, $\frac{1}{5}$, and $\frac{-1}{2}$ from least to greatest.
a. $-\frac{1}{2}, -\frac{1}{3}, \frac{1}{5}$
b. $-\frac{1}{3}, -\frac{1}{2}, \frac{1}{5}$
c. $-\frac{1}{2}, \frac{1}{5}, -\frac{1}{3}$
d. $\frac{1}{5}, -\frac{1}{2}, -\frac{1}{3}$

Simplify.

____ 4. $8\frac{1}{2} + 4\frac{1}{2}$
a. $12\frac{1}{2}$ b. $12\frac{1}{4}$ c. 13 d. 14

____ 5. $13\frac{1}{3} - 7\frac{7}{9}$
a. $5\frac{5}{9}$ b. $6\frac{8}{27}$ c. $6\frac{2}{3}$ d. 7

____ 6. $4\frac{7}{8} + \left(-9\frac{1}{2}\right)$
a. $-4\frac{5}{8}$ b. 14 c. $-4\frac{1}{5}$ d. $-4\frac{1}{2}$

____ 7. $\left(k^3d^5\right)^5$
a. k^8d^{10} b. kd^{40} c. kd^{13} d. $k^{15}d^{25}$

____ 8. $\left(-\frac{2q^4}{7}\right)^4$

a. $\frac{16q^8}{2,401}$ b. $-\frac{16q^{16}}{2,401}$ c. $\frac{16q^{16}}{2,401}$ d. $\frac{2q^{16}}{7}$

____ 9. $\frac{7}{24} - \frac{15}{90}$

a. $-\frac{8}{66}$ b. $-\frac{4}{33}$ c. $-\frac{1}{8}$ d. $\frac{1}{8}$

____ 10. John and Alan have a collection of *x* baseball cards. John has $\frac{x}{4}$ cards. What fraction of the cards does Alan have?

a. $\frac{x}{3}$ b. $\frac{3x}{4}$ c. $\frac{3}{4}$ d. $3x$

Find the quotient. Simplify if possible.

____ 11. $-\frac{6}{10} \div \left(-\frac{5}{7}\right)$

a. $-\frac{13}{50}$ b. $\frac{21}{25}$ c. $\frac{3}{7}$ d. -2

____ 12. $\frac{q}{7} \div \frac{q}{26}$

a. $\frac{7}{26}$ b. $\frac{26}{7}$ c. $\frac{q^2}{182}$ d. $\frac{26q^2}{7}$

____ 13. Sue needs $1\frac{1}{4}$ cups of flour for a batch of cookies. How many batches can she make with 9 cups of flour?

a. 6 batches b. 7 batches c. 4 batches d. 8 batches

Solve.

____ 14. $q + \frac{6}{5} = -\frac{7}{9}$

a. $-1\frac{44}{45}$ b. $-\frac{13}{45}$ c. $\frac{19}{45}$ d. $-\frac{13}{14}$

____ 15. $15\frac{3}{4} = T + 4\frac{5}{8}$

a. $11\frac{2}{3}$ b. $19\frac{1}{2}$ c. $11\frac{1}{4}$ d. $11\frac{1}{8}$

____ 16. $p + 7\frac{2}{4} = 4\frac{1}{2}$

a. $-2\frac{5}{8}$ b. -3 c. $-2\frac{1}{2}$ d. $11\frac{1}{2}$

____ 17. Find *P*(rolling 2 or 5) with one number cube.

a. $\frac{1}{2}$ b. $\frac{1}{3}$ c. $\frac{1}{6}$ d. 1

____ 18. Two U.S. states are not part of the continental United States. What percent of the fifty U.S. states are included in the continental United States?

a. 2% b. 13% c. 48% d. 96%

____ 19. Write 88.2% as a decimal.

a. 8.82 b. 882 c. 0.882 d. 8,820

Write the decimal as a percent.

____ 20. 0.798

a. 0.0798% b. 79.8% c. 7.98% d. 798%

Write the fraction as a percent. Round to the nearest tenth of a percent if necessary.

____ 21. $\frac{17}{40}$

a. 0.425% b. 4.25% c. 42.5% d. 235.3%

8th Pre-Algebra 2 Packet 4

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Jaime is running a marathon, which is a $26\frac{2}{5}$-mi race. At $6\frac{3}{4}$ mi from the start, she passes friends cheering her on. After she passes a water stop $9\frac{1}{2}$ mi farther along the route, how far from the finish line is Jaime?

a. $16\frac{1}{4}$ mi b. $10\frac{3}{20}$ mi c. $2\frac{3}{4}$ mi d. $16\frac{9}{10}$ mi

____ 2. Mai-li has $6\frac{1}{3}$ yd of material. Her new skirt will take $2\frac{1}{3}$ yd. How much material will she have left after the skirt is made?

a. 8 yd b. $8\frac{2}{3}$ yd c. 4 yd d. $12\frac{2}{3}$ yd

____ 3. Walter had $\frac{1}{5}$ yd of string. He used $\frac{1}{2}$ of it on a school project. How much string did he use?

a. $\frac{3}{10}$ yd b. $\frac{1}{10}$ yd c. $\frac{1}{5}$ yd d. $\frac{7}{10}$ yd

Write a ratio for the situation in three ways, comparing the first quantity to the second quantity.

____ 4. A zoo has 17 monkeys and 7 chimpanzees.

a. 7 to 17, 7 : 17, $\frac{7}{17}$
c. 17 to 7, 17 : 7, $\frac{17}{7}$
b. 7 to 24, 7 : 24, $\frac{7}{17}$
d. 17 to 24, 17 : 24, $\frac{17}{24}$

____ 5. Represent the ratio 6 : 18 in two other ways.

a. $\frac{6}{18}$, 6 to 18
c. $\frac{18}{6}$, 18 to 6
b. $\frac{6}{18}$, 18 to 6
d. $\frac{18}{6}$, 6 to 18

____ 6. Jake sold 42 tickets to the school fair and Jeanne sold 9 tickets. What is the ratio, in simplest form, of the number of tickets Jeanne sold to the number of tickets Jake sold?

a. $\frac{14}{3}$ b. $\frac{42}{9}$ c. $\frac{3}{14}$ d. $\frac{9}{42}$

____ 7. Solve the proportion using mental math.

$\frac{x}{3} = \frac{8}{12}$

a. 2 b. 14 c. 1 d. 3

Solve the proportion using cross products. Round to the nearest hundredth if necessary.

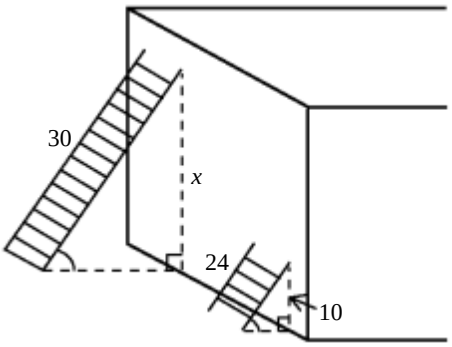
____ 8. $\frac{3.7}{2.4} = \frac{y}{8.2}$

a. 12.64 b. 10.56 c. 14.80 d. 5.32

____ 9. $\frac{0.5}{5} = \frac{0.03}{n}$

a. 3 b. 0.003 c. 0.3 d. 30

____ 10. The ladders shown below are standing against the wall at the same angle. How high up the wall does the longer ladder go? (All measurements are in feet.)



a. 26 ft b. 14 ft c. 12.5 ft d. 11.25 ft

____ 11. Write 58,200 in scientific notation.

a. 58.2×10^4 b. 5.82×10^{-4} c. 5.82×10^4 d. 58.2×10^{-4}

Write in standard form.

____ 12. 6.7×10^7

a. 6,700,000 b. 0.0000000067 c. 67,000,000 d. 670,000,000

____ 13. 0.16×10^6

a. 160 b. 160,000 c. 1,600 d. 16,000,000

Write the ratio as a percent.

____ 14. $\frac{9}{25}$

a. 41% b. 28% c. 36% d. 39%

Write the decimal as a percent.

____ 15. 0.54

a. 54% b. 0.54% c. 5.4% d. 0.0054%

____ 16. 0.5

a. 50% b. 5% c. 500% d. 0.5%

Write the fraction as a percent. If necessary, round to the nearest tenth of a percent.

____ 17. $\frac{18}{25}$

a. 47.3% b. 48.6% c. 72% d. 73.4%

____ 18. $\frac{1}{7}$

a. 14.3% b. 43% c. 41.1% d. 14.9%