Name:_____

Rising MS Algebra I Summer Packet

Please Note: *This is for students in standard Algebra I. Students in Algebra I Honors have a different packet to complete.*

Directions:

- Please complete the packet over the summer.
- Return your work to your Algebra I teacher during the first week of class.
- Use **SEPARATE PAPER** to complete your work.
- **SHOW ALL WORK!!!!**
- The answers have been provided so that you know you're on the right track, however, you must show work for each question to receive credit.

The list of websites below contains tutorials and quizzes on these topics and more.

http://www.regentsprep.org
http://www.math.com
http://education.jlab.org/solquiz/

Part 1 – Rational Number Operations

Integers – You should be able to complete these problems without a calculator.

1. $(4)(-5)$
2. $-6+(-9)$
3. $22-(-4)$
4. $\frac{-36}{-4}$
5. $-16+5$
6. $(-15)(4)$
7. $\frac{42}{-7}$
8. $(-7)(2)(-5)$

Additional online resources:

Adding & Subtracting Integers
Adding & subtracting negative numbers (video)

Multiplying & Dividing Integers
Interpreting multiplication & division of negative numbers (video)

Fractions – Write your answer as an improper fraction in simplest form.

Model Problems:
Best strategy for numbers you will encounter in Algebra:

- *Convert all mixed numbers to improper fractions.*
- *Find a common denominator.*
- *Simplify. In Algebra, we leave our answers as improper fractions.*

Example A:

$3\frac{7}{8}+4\frac{7}{12}$

$\frac{31}{8}+\frac{55}{12}$ (Convert to improper fractions.)

$\frac{93}{24}+\frac{110}{24}$ (Find a common denominator.)

$\frac{203}{24}$ (Add and simplify.)

Example B:

$2\frac{1}{3}-7\frac{3}{5}$

$\frac{7}{3}-\frac{38}{5}$ (Convert to improper fractions.)

$\frac{35}{15}-\frac{114}{15}$ (Find a common denominator.)

$-\frac{79}{15}$ (Subtract and simplify.)

9. $6\frac{4}{7}-5\frac{1}{8}$
10. $-\frac{1}{3}+\frac{3}{4}$
11. $4\frac{1}{6}+5\frac{3}{8}$
12. $-7\frac{1}{5}-2\frac{6}{7}$

Additional online resources:

Adding & Subtracting Fractions
Adding fractions with different signs (video)

Model Problems:
Best strategy for numbers you will encounter in Algebra:

- *Convert all mixed numbers to improper fractions.*
- *(If dividing, remember to **multiply by the reciprocal.**)*
- *Simplify a numerator and a denominator, if possible.*
- *Multiply straight across. In Algebra, we leave our answers as improper fractions.*

Example A:

$-1\frac{3}{5} \bullet 3\frac{1}{8}$

$-\frac{8}{5} \bullet \frac{25}{8}$ (Convert to improper fractions.)

$-\frac{\cancel{8}^{1}}{\cancel{5}_{1}} \bullet \frac{\cancel{25}^{5}}{\cancel{8}_{1}}$ (Find a common denominator.)

$-\frac{5}{1} = -5$ (Simplify.)

Example B:

$-10\frac{2}{3} \div \left(-1\frac{7}{9}\right)$

$-\frac{32}{3} \div \left(-\frac{16}{9}\right)$ (Improper fractions)

$-\frac{32}{3} \bullet -\frac{9}{16}$ (Multiply by the reciprocal.)

$-\frac{\cancel{32}^{2}}{\cancel{3}_{1}} \bullet -\frac{\cancel{9}^{3}}{\cancel{16}_{1}}$ (Simplify.)

$\frac{6}{1} = 6$ (Multiply.)

13. $-2\frac{2}{3} \div \left(-4\frac{4}{5}\right)$

14. $-10 \div \frac{4}{5}$

15. $\frac{2}{5} \bullet \frac{9}{16}$

16. $3\frac{1}{5} \bullet \left(-1\frac{1}{2}\right)$

Additional online resources:

Multiplying Fractions
Intro to multiplying 2 fractions (video)

Dividing Fractions
Understanding division of fractions (video)

Part 2 – Algebraic and Numerical Expressions

Simplify each expression by applying the correct order of operations.
You should be able to complete these without a calculator.

17. $(-4)^2 \div 2 + (4-7) \bullet 4$

18. $2\left(3^3 + 8\right) \div (-5)$

19. $\dfrac{-24-2+10}{(-5-3)^2}$

Additional online resources:

Order of Operations
Intro to order of operations (video)

Simplify each expression by combining like terms.

20. $4x + 8 + 3x - 5$

21. $7y - 4 - y + 9$

22. $-2x + 8y - 3x + 12y - 16$

23. $2 + 4x - 9 - 10x$

Additional online resources:

Combining Like Terms
Intro to combining like terms (video)

Simplify each expression by applying the distributive property.

24. $6(x-5)$

25. $4(2x+1)$

26. $-3(x-7)$

Additional online resources:

Distributive Property
Distributive property with variables (video)

Evaluate each expression. You should be able to complete these without a calculator.

27. $3a + 7$ when a = 5

28. $c^2 + b$ when b = -3 and c = 4

29. $5d - 6f + 2$ when d = 8, f = 3

30. $20 - (m - n)$ when m = 3 and n = -2.

Part 3 – Equations

Solve each equation. You should be able to complete these without a calculator.

31. $4x - 7 = -15$

32. $\frac{y}{-7} = 5$

33. $-17 = r + 6$

34. $\frac{n}{3} + 10 = 4$

35. $\frac{3}{7}a = 42$

36. $5 - 9x = 68$

Additional online resources:

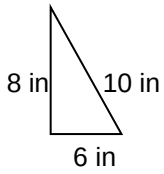
Two-Step Equations
Same thing to both sides of equations (video)

Two-step equations with decimals and fractions (video)

Part 4 – Word Problems with Perimeter and Area

37. Maria needs to put a fence around a garden that is 17 feet long and 6 feet wide. How much fence does she need?

38. Andrew is building a model sailboat. He will build the sail out of fabric. The triangular sail is shown. How much fabric does Andrew need?



39. Shayla is building a wooden wall that is 11 feet tall and 15 feet long. How many square feet of wood will she need?

Additional online resources:

Perimeter and Area Word Problems
Perimeter and Area Word Problems Sample Problems

Answers:

1. -20
2. -15
3. 26
4. 9
5. -11
6. -60
7. -6
8. 70
9. $\frac{81}{56}$
10. $\frac{5}{12}$
11. $\frac{229}{24}$
12. $-\frac{352}{35}$
13. $\frac{5}{9}$
14. $-\frac{25}{2}$
15. $\frac{9}{40}$
16. $-\frac{24}{5}$
17. -4
18. -14
19. $-\frac{1}{4}$
20. $7x+3$
21. $6y+5$
22. $-5x+20y-16$
23. $-6x-7$
24. $6x-30$
25. $8x+4$
26. $-3x+21$
27. 22
28. 13
29. 24
30. 15
31. $x=-2$
32. $y=-35$
33. $-23=r$
34. $n=-18$
35. $a=98$
36. $x=-7$
37. 46 feet
38. 24 sq in
39. 165 sq ft