Algebra Readiness SAMPLER

CRS Algebra 1

(College-Readiness Standards)

Algebra Readiness

- ☐ PLACEMENT①
- ☐ Fraction *Basics*②
- ☐ Percent *Basics*③
- ☐ Algebra *Basics*④

CRS Algebra 1

- ☐ CRS - Algebra Comprehensive Pre-Post Assessment⑥
- ☐ CRS - Algebra Comprehensive Midterm Assessment⑧
- ☐ Algebra *Basics*⑨
- ☐ CRS - Algebra Quik-Piks^{SM} Book 1⑩
- ☐ CRS - Algebra Quik-Piks^{SM} Book 2⑪

LEVEL H: PLACEMENT Assessment

Choose the best answer.

21) $\frac{2}{2} =$ Ⓐ 2.2 Ⓒ 1.0 Ⓑ 1.2 Ⓓ 1.1 Ⓔ 1.5	26) $\sqrt{25} =$ Ⓐ 6 Ⓒ 4 Ⓑ 5 Ⓓ 3 Ⓔ 2
22) $\frac{1}{8} =$ Ⓐ 1.8 Ⓒ 0.18 Ⓑ 0.25 Ⓓ 1.25 Ⓔ 0.125	27) $\sqrt{36} =$ Ⓐ 8 Ⓒ 6 Ⓑ 7 Ⓓ 5 Ⓔ 4
23) $\frac{2}{3} =$ Ⓐ 0.6 Ⓒ $0.2\overline{3}$ Ⓑ $0.\overline{6}$ Ⓓ 2.3 Ⓔ $0.6\overline{6}$	28) $\sqrt{49} =$ Ⓐ 11 Ⓒ 9 Ⓑ 10 Ⓓ 8 Ⓔ 7
24) $\frac{3}{5} =$ Ⓐ 0.35 Ⓒ $3.\overline{5}$ Ⓑ $0.\overline{6}$ Ⓓ 0.6 Ⓔ $\overline{6}.0$	29) $\sqrt{121} =$ Ⓐ 14 Ⓒ 12 Ⓑ 13 Ⓓ 11 Ⓔ 10
25) $\frac{1}{9} =$ Ⓐ 0.1 Ⓒ 0.111 Ⓑ 0.11 Ⓓ 1.9 Ⓔ $0.\overline{1}$	30) $\sqrt{144} =$ Ⓐ 11 Ⓒ 13 Ⓑ 12 Ⓓ 14 Ⓔ 15

Least Common Denominator (LCD)

NAME: _____ **DATE:** _____

Find the least common denominator of each set.

1) $\frac{2}{6}, \frac{4}{15}$	6) $\frac{1}{2}, \frac{1}{10}, \frac{1}{5}$
2) $\frac{1}{5}, \frac{1}{4}$	7) $\frac{2}{21}, \frac{1}{3}, \frac{3}{7}$
3) $\frac{1}{6}, \frac{1}{4}, \frac{3}{8}$	8) $\frac{5}{6}, \frac{1}{8}, \frac{5}{12}$
4) $\frac{1}{9}, \frac{1}{6}, \frac{3}{4}$	9) $\frac{1}{12}, \frac{1}{5}, \frac{1}{30}$
5) $\frac{1}{6}, \frac{2}{3}$	10) $\frac{1}{5}, \frac{1}{20}, \frac{3}{50}$

SCORE: /10 (%)

Percent Basics

Percent (10%)

Example: 10% of 50 = 5.

Remember: 10% is the same as ÷ by 10. Also, 10% of a number is the same as moving the decimal point one place to the left(10% of 50 = 5.0.= 5).

Calculate the values for the problems below.

Percent	Answer
① 10% of 10	
② 10% of 20	
③ 10% of 40	
④ 10% of 60	
⑤ 10% of 80	
⑥ 10% of 100	
⑦ 10% of 200	
⑧ 10% of 400	
⑨ 10% of 600	
⑩ 10% of 1,000	

/10 (_____%)

ALGEBRA BASICS #18
SIGNED NUMBER OPERATIONS: SUMS & "DIFFERENCES"

Once again, **negative** and **positive** numbers are also called **signed numbers**.

Addition: 1) If the **signs** are the **same**, then **add** the values and **keep** the **sign** the **same** (+ or -).
2) If the signs are **different**, then take the **difference** between the values and use the **sign** of the **larger absolute value** (+ or -).

Examples: -6 + 2 = ?: ***Step ①***) 6 – 2 = 4
Step ②) | -6 | > | 2 | so use the **negative sign (-)** from -6.
Step ③) -6 + 2 = -4

Subtraction: Essentially, there is **no subtraction** for **signed numbers**. You change the problem from **subtraction** to **adding the additive inverse** and then apply the rules above.

Examples: a) -2 – 7 → change to -2 + -7 = -9
b) 5 – (-2) → change to 5 + (+2) = 7
c) 4 – 7 → change to 4 + -7 = -3

Quik-Points℠: Remember a "-" means to take the opposite of a given value: -(-8) = 8.

Compute the following.

	Expression	Which Sign (+ or -) for the *Sum*?	Sum or "Difference"
Example A	3 - 5	**Commutative Property** **3 + (-5)** → (| -5 | > 3 so use **"–"** for the sum)	**-2**
Example B	-5 + 13	**+**	**8**
1	20 – 8		
2	-8 + 20		
3	-5 + 6		
4	- 5 – 7		
5	-8 - 9		
6	$\frac{1}{2}-\frac{1}{6}=$		
7	9 – 18		
8	-6 – -8		
9	7 – -4		
10	$-\frac{1}{2}+\frac{1}{3}=$		

SCORE: / 10 (%)

ALGEBRA BASICS # 27
ORDER OF OPERATIONS

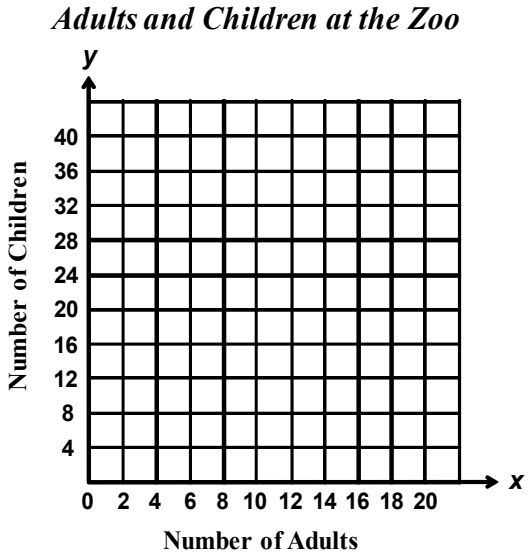
Simplify the following expressions.

	Expression	Answer
1	$74 - 24 + 4 - 12 + 8$	
2	$65 - 14 + 23 - 19 + 21$	
3	$81 \div (4 + 5) \times 6$	
4	$64 \div (2^2 + 2^2) \times 4$	
5	$48 \div (8 + 4) \times 5$	
6	$4 \times (5 + 2^2) \div 2$	
7	$3^2 - 6 \times 5 \div 10 + 5$	
8	$25 - 18 \div 6$	
9	$5^2 - 2^3 \div (2 + 2 + 2)$	
10	$(3 \bullet 7) \bullet 5$	
11	$7^2 - 7 \bullet 7^0$	
12	$6(3 + 6) \div 6 - 3 \bullet 3^0$	
13	$9(12 + 2^2)$	
14	$5 \div 5 + 5 \div 5 + 5 \div 5$	
15	$15^0 - 1^3 - 16 \div 2^4$	
16	$7 \bullet 9 - (2^4 - 8)$	
17	$96 \div (1^3 + 5^0) \bullet 5^1$	
18	$3^4 - 5(2^2 + 3^2)$	
19	$75 - 3 \bullet 4 + (1 + 3) - 16^0$	
20	$6(4 + 3^2) - 36 \div 4^0$	

SCORE: / 20 (%)

8 There were 30 people that went to the zoo. Some were adults and some were children. Admission for adults is $7. Admission for children is $5. A total of $160 was spent.

Total People: $x + y = 30$
Total Paid: $7x + 5y = 160$



Which of the following indicates the number of children who went to the zoo?

A 5
B 10
C 15
D 20
E 25

39 Magnolia is traveling to Elwood. Before she begins her trip, she is 350 miles from Elwood. She expects to complete her trip in 5 hours. She creates the ordered pairs below to plot her start time and beginning distance as well as her end time and ending distance.

$(0, 350)$ and $(5, 0)$

Which equation below can be used to plot her distance according to the number of hours that have elapsed?

A $y = 70x - 350$

C $y = -70x + 350$

B $y = -5x + 350$

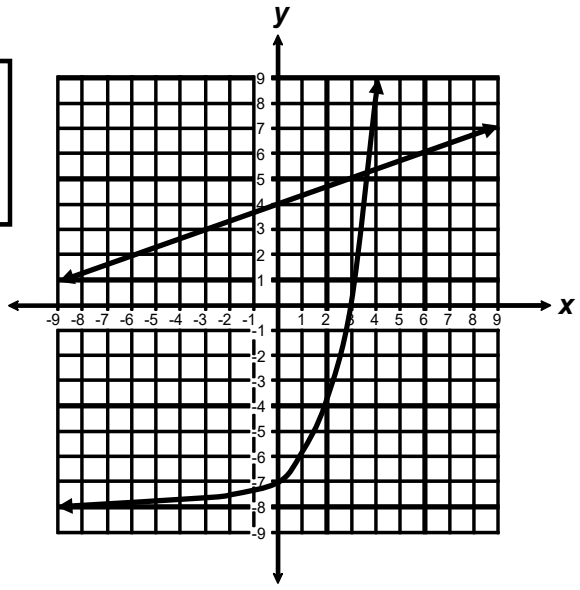
D $y = 5x - 350$

E $y = -50x + 350$

40 Patricia graphed a linear equation and an exponential equation.

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

$g(x) = 2^x - 8$



For which values of x below, is the exponential equation greater? Mark all that apply.

A 2 B 3 C 4 D 5 E 6

24 The table below shows the favorite snack for 200 students at Palm Tree Elementary.

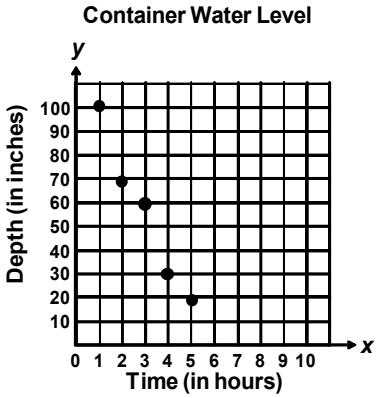
	Chips	Cookies	Pretzels	Total
Boys	0.18		0.12	0.47
Girls	0.10		0.21	0.53
Total	0.28		0.33	1.00

How many boys have cookies as their favorite snack?

A 36
B 34
C 17
D 16
E 8

25 Jared is studying the changing water level in a container.
He collected the data and placed it in a scatter plot.

Which equation is the line of best fit for the scatter plot provided?



A $y = -40x + 116$
B $y = -30x + 70$
C $y = -20x + 116$
D $y = 30x + 116$
E $y = 20x + 100$

ALGEBRA BASICS #41
"TYPE 3" EQUATIONS (FRACTIONS)

Solve the following equations. You can use separate sheets of paper to do your work.

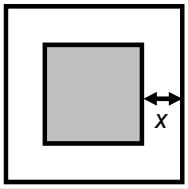
Problem	Equation	Solution
Example	$\frac{1}{3}x-2=7$	$\frac{1}{3}x-2=7$ → Think "*Type 1*". $+2=+2$ $\frac{1}{3}x=9$ → Think "*Type 2*". $3\bullet\frac{1}{3}x=9\bullet3$ $x = 27$ → Plug 27 into the **original** equation to check the solution for correctness. $\frac{1}{3}\bullet(27)-2=7$ → $9-2=7$ ✓ **Make a check mark.**
1	$-\frac{1}{3}m+2=20$	$m =$
2	$\frac{1}{4}n-6=14$	$n =$
3	$-\frac{1}{5}p+6=9$	$p =$
4	$\frac{1}{10}y+4=64$	$y =$
5	$\frac{1}{6}j-6=4$	$j =$
6	$-\frac{1}{5}x-8=-7$	$x =$
7	$-\frac{1}{3}n+5=11$	$n =$
8	$\frac{5}{6}r-4=-19$	$r =$
9	$-\frac{2}{5}p+\frac{1}{4}=-\frac{3}{10}$	$p =$
10	$\frac{-m}{7}-\left(-\frac{1}{4}\right)=-\frac{1}{2}$	$m =$

SCORE: / 10 (%)

Algebra: *QUIK-PIK # 6*

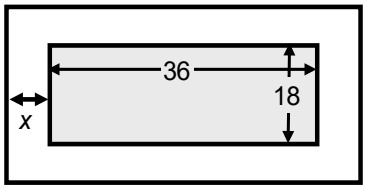
1. The area of the shaded square below is 100 square meters. There is a border around the square that is x meters thick. Write an equation that expresses the area, A, of the square and the border in terms of x.

Answer: _____



2. A surface measures 36 feet by 18 feet. There is a border around the surface that is x feet thick. Write an equation that expresses the area, A, of the surface and the border in terms of x.

Answer: _____



3. Elbert collected donations for 6 days. Each day he visited more people than he did the previous day. The table shows the number of visits he made as well as the total amount of funds raised.

For each additional person he visited, how much did he collect?

Answer: $ _____

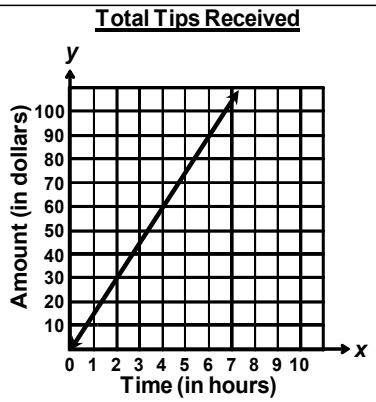
Donations Collected

People Visited	3	4	6	8	11	12
Funds Collected (in dollars)	18	24	36	48	66	72

4. The graph shows the amount of dollars Eleanor received in tips for working a certain number of hours.

How many dollars did Eleanor receive in tips per hour?

Answer: $ _____ per hour



5. Complete the tables below. For the expressions below, $a \neq 0$ and $x \neq 0$.

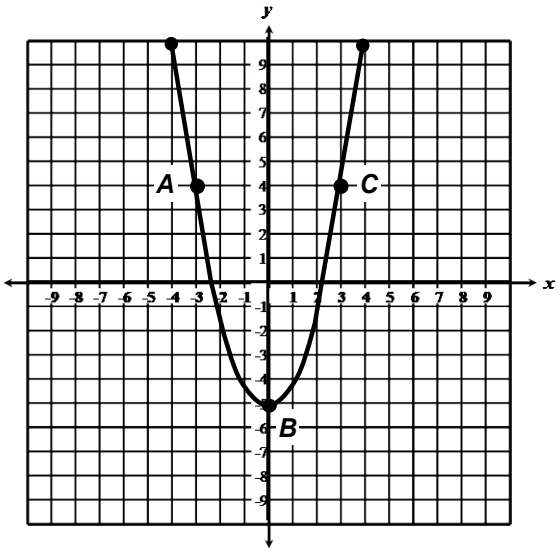
Example	$\frac{a^9}{a^4}$	$a^{9-4} = a^5$
a	$\frac{a^9}{a^7}$	

b	$\frac{a^{13}}{a^6}$	
c	$\frac{a^{14}}{a^5}$	

d	$\frac{x^4}{x^3}$	
e	$\frac{a^c}{a^d}$	

Algebra: *QUIK-PIK # 10*

1. The figure shows the graph of a function **f** whose domain is the interval $-4 \le x \le 4$.



a) For (1) – (3), sketch the graph of the given function and compare to the graph of *f*. Explain what you see.

1) $g(x) = f(x) + 3$
2) $h(x) = -f(x)$
3) $r(x) = f(x - 3)$

b) The points labeled *A, B, C* on the graph of f have the following coordinates:

$A = (-3, 4)$ $B = (0, -5)$, $C = (3, 4)$

What are the coordinates of the points corresponding to *A, B, C* on the graphs of *g, h,* and *r*?