EQUATIONS, INEQUALITIES, AND FUNCTIONS 6

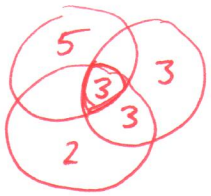
Name: Key Date: _____ Period: _____

CHAPTER 6: SPIRAL REVIEW

1. Write an equation for each statement below:
   a. 3 more than a number times 5 is 48 $N \cdot 5 + 3 = 48$
   b. A number divided by 2 is 16 $N \div 2 = 16$
   c. The quotient of 8 and a number is 4 $8 \div 4 = N$
   d. 14 less than a number is 20 $N - 14 = 20$

2. Katy is making bags of party favors for her birthday party. She has 27 bottles of fingernail polish, 15 files, and 18 bottles of lotion. What is the greatest number of identical party favor bags Katy can make?

$27 = 3 \cdot 3 \cdot 3$
$15 = 3 \cdot 5$
$18 = 3 \cdot 3 \cdot 2$



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Katy can make 3 bags of party favors. Each bag will have 9 bottles of fingernail polish, 5 files, and 6 bottles of lotion.

3. Convert each of the improper fractions to a mixed number. Make sure all fractions are in simplest form.

Improper Fraction	Mixed Number	Improper Fraction	Mixed Number	Improper Fraction	Mixed Number
$\frac{38}{4} = \frac{19}{2}$	$9\frac{1}{2}$	$\frac{56}{13} = \frac{52+4}{13}$	$4\frac{4}{13}$	$\frac{118}{9} = \frac{117+1}{9} =$	$13\frac{1}{9}$
$\frac{29}{3} = \frac{27+2}{3}$	$9\frac{2}{3}$	$\frac{82}{11} = \frac{77+5}{11} =$	$7\frac{5}{11}$	$\frac{39}{4} = \frac{36+3}{4} =$	$9\frac{3}{4}$
$\frac{18}{2} =$	9	$\frac{45}{23} = \frac{23+22}{23} =$	$1\frac{22}{23}$	$\frac{46}{8} = \frac{40+6}{8} =$	$5\frac{3}{4}$

4. Evaluate the following expressions:

a. $16 \cdot (3^3 - 7) \div 2$

$16 \cdot (27-7) \div 2$

$16 \cdot (20) \div 2$

$320 \div 2$

160

b. $7^2 - 6 \cdot 2 + 21$

$49 - 12 + 21$

$37 + 21$

58

5. Add or Subtract the following whole numbers, fractions, or mixed numbers:

$\frac{9}{9}\cdot\frac{3}{8} + \frac{5}{9}\cdot\frac{8}{8} =$ $\frac{27}{72} + \frac{40}{72} = \boxed{\frac{67}{72}}$	$1\frac{5}{9} - \frac{1}{2} =$ $1 + \frac{5}{9} - \frac{1}{2}$ $1 + \frac{5\cdot2}{9\cdot2} - \frac{1\cdot9}{2\cdot9} =$ $1 + \frac{10}{18} - \frac{9}{18} = 1 + \frac{1}{18}$ $\boxed{1\frac{1}{18}}$	$4 - 2\frac{5}{16} =$ $4 - 2\frac{5}{16} =$ $\frac{4\cdot16}{16} - \left(\frac{2\cdot16}{16} + \frac{5}{16}\right)$ $\frac{64}{16} - \frac{37}{16} = \boxed{\frac{27}{16}}$
$3\cdot\frac{8}{3\cdot13} + \frac{1}{3}\cdot\frac{13}{13} =$ $\frac{24}{39} + \frac{13}{39} = \boxed{\frac{37}{39}}$	$2\cdot\frac{11}{2\cdot13} - \frac{1}{2}\cdot\frac{13}{13} =$ $\frac{22}{26} - \frac{13}{26} = \boxed{\frac{9}{26}}$	$6\frac{5}{9} + 4\frac{5}{9} =$ $6\frac{5}{9} + 4\frac{5}{9} =$ $6 + 4 + \frac{5}{9} + \frac{5}{9} =$ $10 + \frac{10}{9} = 10 + 1 + \frac{1}{9} =$ $11 + \frac{1}{9} = \boxed{11\frac{1}{9}}$

6. Consider the sequence below:

4 4 4 4

5, 9, 13, 17, 21, ...

$5 = 1 + 4 = 1 + 4(1)$

$9 = 1 + 4 + 4 = 1 + 4(2)$

$13 = 1 + 4 + 4 + 4 = 1 + 4(3)$

The next two terms in the sequence would be: 25, 29

Write the rule to find the nth term: $1 + 4n$ or $4n + 1$

7. Reese makes glitzy cell phone covers for her friends. Each cover requires 63 crystals for decoration. Complete the table below to show the relationship between the number of phone covers made and the number of crystals used. Then write an equation that could be used to find *c*, the number of crystals needed in terms of *p*, the number of cell phone covers made.

Number of phone covers, *(p)*	Number of Crystals, *(c)*
1	63
2	$63+63=2(63)=126$
3	$3(63)=189$
4	$4(63)=252$
p	$c=63p$

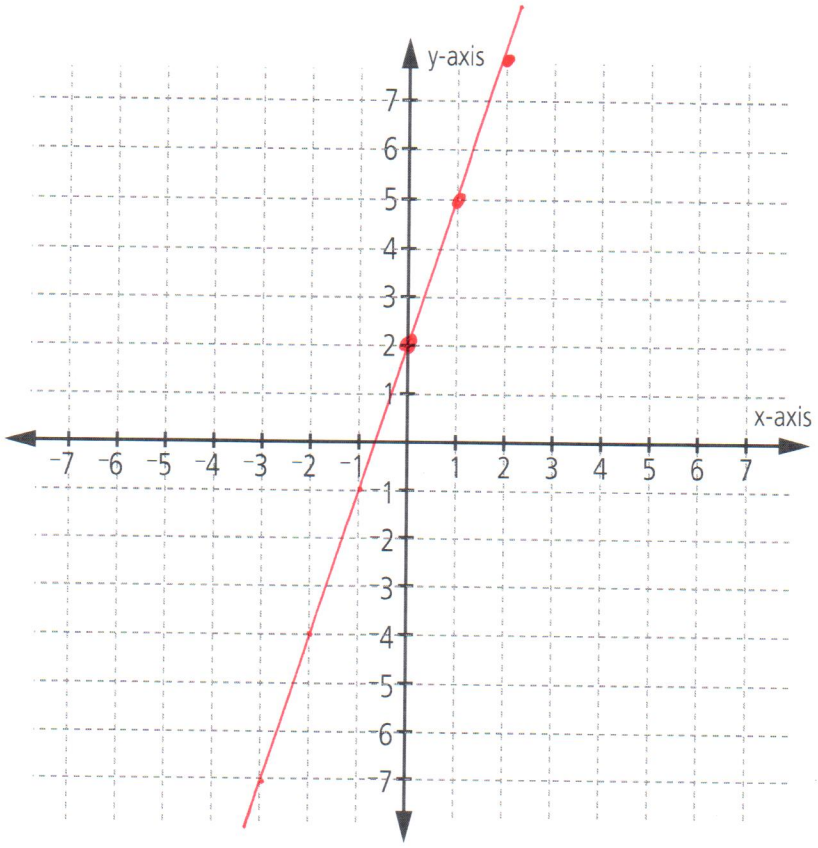
Equation: $c=63p$

8. Solve the following equations:

$7+p=211$ $7+p-7=211-7$ $p=204$	$65-x=14$ $65-x-65=14-65$ $-x=-51$ $-1(-x)=-1(-51)$ $x=51$	$3t=63$ $\frac{3t}{3}=\frac{63}{3}$ $t=21$
$46+k=82$ $46+k-46=82-46$ $k=36$	$v-36=40$ $v-36+36=40+36$ $v=76$	$15\div f=3$ $(15\div f)f=3(f)$ $15=3(f)$ $\frac{15}{3}=\frac{3f}{3}$ $5=f$

9. Follow the function rule to complete the table and graph the function:

Input, *x*	Function Rule $y=3x+2$	Output, *y*	Ordered Pairs *(x, y)*
0	$3(0)+2$	2	(0, 2)
1	$3(1)+2$	5	(1, 5)
2	$3(2)+2$	8	(2, 8)
5	$3(5)+2$	17	(5, 17)
7	$3(7)+2$	23	(7, 23)
x	$3x+2$	*y*	(x, y)



10. Consider the following pattern of inputs and outputs. Write a rule that gives the output, y, in terms of the input, x.

Input, x	Output, y
3	12
4	17
5	22
6	27
7	32

+1 +1 +1 +1 → +5 +5 +5 +5

$= 5+5+5-3$
$= 5+5+5+5-3$
$= 5(5)-3$
$= 5(6)-3$
$= 5(7)-3$

Rule: $y = 5x - 3$