$\qquad$ KEY $\qquad$

1) Write an algebraic expression for: 6 less than the product of 4 and a number cubed.

Evaluate
2) $56 \div 8(-3-1)^{2}$
112
3) $12+6(-2) \div 4 \cdot 3-5--2$
4) $\frac{36+45 \div(6-1)}{(2+3)(2-5)}-3$

## Simplify

5) $3(x-5)-4(x+3 x)$ $\square$ 6) $2(x-8)-(x-7) x-9$
6) $\frac{3}{7}(21 y-42) \quad 9 y-18$
7) Evaluate the expression $72 x+15-x^{3}$ when $x=-2$.

$$
-121
$$

Name the property illustrated in each equation.
9) $5+0=5$
10) $(7+x)+y=(x+7)+y$
11) $\quad(2 x) y=2(x y)$
Identity prop. Of addition
Commutative Prop. Of Addition
Associative Prop Of Mult
12) Order $-\sqrt{64}, 0.75, \frac{27}{-3}$, and $\frac{1}{4}$ from least to greatest. $\frac{27}{-3},-\sqrt{64}, \frac{1}{4}, 0.75$
13) Write $4 y \cdot 4 y \cdot 4 y$ in exponential form $(4 y)^{3}$
14) Write an equation for: The product of four and a number squared is twice the sum of the number and fifteen.
$4 n^{2}=2(n+15)$
Solve the equations if possible. Determine if the equation has no solution, all real numbers are solutions, or one solution (if the equation has one solution, give the solution).
15) $12=-x-(-4)-8$
16) $5 x-7(3-2 x)=36$
3
17) $\frac{4}{7} y-21=7$
49
18) $y+23=3(2 y+1) \quad 4$
19) $14-(6-3 x)=4 x-x$
21) $2(y-8)+7=5(y+2)-3 y-19$ All Real Numbers
23) Solve the proportion. $\frac{2}{x-3}=\frac{5}{x+1} \quad \frac{17}{3}$
24) Solve $-3 x+9 y+9=-3$ for $y$.

$$
y=\frac{1}{3} x-\frac{4}{3}
$$

25) if $f(x)=2 x^{2}-21$, find $f(-3) . \quad f(-3)=-3$
26) Adult tickets for a concert cost $\$ 8$ each and students tickets cost $\$ 5$ each. A total of 55 tickets were sold worth $\$ 365$. How many adult and student tickets were sold? 30 adult tickets and 25 student tickets
27) Tom and Jaime earned 385 points in a video game. Tom earned 5 more than 3 times as many points as Jaime. How many points did Tom earn in the video game? 290 points
28) Find the $x$-intercept and the $y$-intercept of the equation $5 x-6 y=30$. Then graph.
$x$-intercept : $(6,0) \quad y$-intercept: $(0,-5)$; Graph in appendix
29) Make a table of values for $y=\frac{2}{3} x-5$. Use the values $-3,0,3$, for $x$. Then graph.See appendix

Graph. See appendix for 30-33
30) $y=-\frac{2}{3} x+4$
31) $y=-4$
32) $-3 x+6 y=-18$
33) $x=7$
34) Write the equation of the line. $y=\frac{2}{3} x+2$


Find the slope of the line that passes through each pair of points.
35) $(2,-1),(5,-3)$
36)
$(5,3),(-1,3)$
37) $(5,7),(-2,-3)$
38) $(4,2),(4,5)$

zero
$\frac{10}{7}$
undefined
39) Find the value of $r$ so that the line through $(8, r)$ and $(4,5)$ has a slope of -4 .

$$
r=-11
$$

Write a linear equation in slope-intercept form. Identify the slope and $y$-intercept.
40) $3 x-2 y=12$
41)
$-16 x-4 y=-28$
$y=-4 x+7$

Write and equation for each of the following lines in slope - intercept form.
42) Passes through the point $(-3,5)$ with a slope of -1 .

$$
y=-x+2
$$

43) Passes through the points ( $-4,-2$ ) and ( 4,0 ).

$$
y=\frac{1}{4} x-1
$$

44) Write $y+4=3(3 x+3)$
in slope-intercept form.
45) Write $y-2=-\frac{2}{5}(x-8)$ in standard form.

$$
y=9 x+5
$$

$$
2 x+5 y=26
$$

46) Write the point-slope form of an equation for the line that passes through the point $(4,-9)$ with slope of $\frac{1}{5}$.

$$
y+9=\frac{1}{5}(x-4)
$$

47) Write the slope-intercept form of an equation for the line that passes through the point $(-1,2)$ and is parallel to the graph of $y=2 x-3 . \quad y=2 x+4$
48) Write the slope-intercept form of an equation for the line that passes through the point $(6,-2)$ and is perpendicular to the graph of $y=\frac{3}{5} x-4 . \quad y=-\frac{5}{3} x+8$
49) You want to hire a D.J. for a party. There is an initial fee of $\$ 75$, plus $\$ 30$ per hour. Write a linear equation for the situation where $y$ represents the cost of the D.J. and $x$ represents the number of hours. What is the cost for 4 hours? $y=30 x+75 ; 4$ hours cost $\$ 195$ Appendix

Graph each system of equations. Then determine whether the system has no solution, infinitely many solutions or one solution. If the system has one solution, name it. Write the answer on the answer line below the graph.
50) $3 x-4 y=8 ; 3 x-4 y=-16$


No solution
51) $-x+y=3 ; 2 x+2 y=14$

52) $2 x-y=5$; $4 x-2 y=10$


Infinitely many solutions
53) Solve the system of equations by SUBSTITUTION.
$2 x+2 y=3 ; x-4 y=-1$
$\left(1, \frac{1}{2}\right)$
54) Solve the system of equation by ELIMINATION.
$2 x-15 y=-10 ;-4 x+5 y=-30$
$(10,2)$
Solve each system of equations by the method of your choice.
55) $x+y=3$; $x+2 y=4$
$(2,1)$
56) $-13=4 x-3 y ; 5 x+2 y=1$
$(-1,3)$
Solve each of the following word problems by first writing a system of equations.
57) Charlie is three years younger than twice Alan's age. Together they are 39 years old. How old is each person?
Variables _let $\mathrm{x}=$ Charlie's age ; let $\mathrm{y}=$ Alan's age
Verbal Model Alan's age times two minus three equals charlie's age
Equation $2 y-3=x$
Verbal Model Charlie's age plus Alan's age equals thirty nine
Equation $x+y=39$
Solve the system.
Answer: Alan is 14 years old and Charlie is 25 years old

Write an inequality that describes the graph.
58)


$$
x<-4
$$

## Write an inequality and then solve.

59) The sum of twelve and a number is less than the sum of twice the number and negative eight. $12+n<2 n+(-8)$
Solve:
60) $-12 \geq-\frac{3}{5} x-18 \quad x \geq-10$
61) $\frac{3}{7}(y-14)>-5+\frac{3}{7} y$
No Solution
62) $-2(x+4)>3 x+17 \quad x<-5$
63) $3 a-2(6 a-4)>4-(4 a+6)$
$a>2$

64) $2 x+3 y>15$
65) $2 x-3 y \leq-6$

66) $y>x+2$

67) $x+y>1$ $2 x-3 y \leq-6$

68) $3 x+3 y>12$ $2 x+2 y<-1$



| 29. |  |  |  |
| :---: | :---: | :---: | :---: |
|  | x | $y=2 / 3 x-5$ | ( $x, y$ ) |
|  | 3 | $y=2 / 3(3)-5$ $y=-3$ | $(3,-3)$ |
|  |  | $y=2 / 3(0)-5$ | (0,5) |
|  | 0 | y $y=-5$ | $(0,-5)$ |
|  | -3 | $y=2 / 3(-3)-5$ $y=-7$ | $(-3,-7)$ |
|  |  | $y=-1$ |  |
|  |  |  |  |
|  |  | $\uparrow$ |  |
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|  |  |  |  |
| $\leftarrow$ |  |  |  |
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