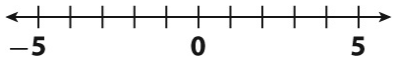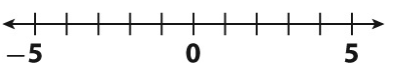Accelerated Review 4: **Equations**   Name:

For full credit, show all work. For **all** problems show the equation and all steps in solving.
You will be graded on **your work** in addition to **your answer.**

1.	Which equation has a solution of 12? A $x-6=6$ B $x+6=6$ C $4=x-16$ D $4=8+x$	
2.	Jeff found 3 times as many seashells as his sister. Jeff found 39 seashells. Which of the following equations could be used to find how many seashells his sister found? A $x+3=39$ B $x-3=39$ C $3x=39$ D $\dfrac{x}{3}=39$	
3.	Write and solve an equation to answer the question in the problem below. A student bought a juice drink for \$1.75 and a sandwich. The total cost was \$5.50. How much was the sandwich? My equation to solve this problem:	
4.	Determine value of y that satisfies the equation: $\dfrac{y}{3}-9=12$	
5.	Jamie has 6 quarters and some dimes in his pocket. The total value of the coins is \$4.50. How many dimes does he have in his pocket? My equation to solve this problem:	

6.	Renting a bicycle costs \$15 for the first hour and \$5.50 for each additional hour. Let x represent the number of additional hours. If you have \$25 to spend, which of the following equations could be used to find how many hours you can rent a bicycle?
	  A $5.5x+15=25$ C $5.5x-15=25$
	  B $15x+5.5=25$ D $15x-5.5=25$	

7.	Solve the equation for x. $\dfrac{1}{4}+2x=\dfrac{7}{8}$	
8.	Write and solve an equation for the problem below. A student bought two juice drinks for \$1.75 each and three sandwiches. The total cost was \$14.75. How much did each sandwich cost? My equation to solve this problem:	

9.	Find a number such that the number decreased by -11 is 28. A 39 B 308 C 17 D -39	
10.	Solve the equation for g. $42-12g = -6$	

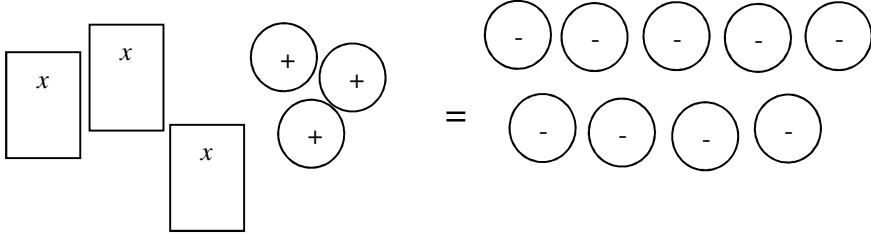| 11.	Solve the equation below. Graph the solution on the number line. $$7+\frac{w}{2}=6$$ (number line from -5 to 5)	
12.	Solve the equation below. Graph the solution on the number line. $$-3w=-9$$ (number line from -5 to 5)	

Solve each equation. You do not have to check your answer.

13.	$\dfrac{12+b}{-3}=10$		14.	$0.5g+-2 = 10$	
15.	$\dfrac{e}{4}-8=-28$		16.	$0.1x-0.3 = 0.5$	

Write an equation for each situation and then solve. **Make sure your equation matches the story and that you have not started solving the problem as part of the equation.**

		Equation	Answer
17.	Six of Mr. Mangham's students decide to go visit their relatives at the zoo. Each student buys a ticket to get into the zoo and all together they spend $45 at the gift shop. If their total cost for the day was $93, how much did a single zoo ticket cost?	Variable:	
18.	Mr. Mangham bought 150 football cards to add to his collection. The next day Snuffy the Seal ate one half of his collection. Now there are only 360 cards left. How many cards did Mr. Mangham start with?	Variable:	

19.	The equation $3x + 3 = -9$ is modeled below. What value of x makes the equation true? [model: three boxes labeled x, three circles labeled $+$, $=$, nine circles labeled $-$]

	$\dfrac{x}{5} + 4 = -10$ $\qquad$ $\dfrac{x+4}{5} = -10$	Describe the differences in solving the two problems. You do not have to actually solve the problems. Write your explanation below.
20.		

Use **this page** plus your knowledge of Hands-On Equations to solve the following equations. **Use arrows, circles, lines, etc. to show pieces being added or deleted.**

$\triangle$ $\qquad$ $\triangle$ $\qquad\qquad$ [3] $\qquad$ [-3]

$\quad x \qquad\qquad -x \qquad\qquad\qquad$ positive $\quad$ negative
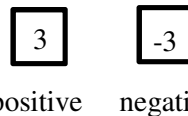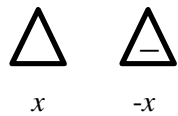
For the positive and negative integers write the appropriate number in the square.

21.	$x - 2 = 5$		22.	$2x + 8 = 2$	

21.	

22.	

23.	Simplify the expression below by using the distributive property. $$2(5x+1)$$	
24.	Eastville has a population of 32,000 and is gaining 500 people per year. Lakeside has a population of 45,000 and is losing 1,000 people per year. When will Eastville have the same number of people as Lakeside? A $5\frac{1}{3}$ years B $6\frac{1}{2}$ years C $8\frac{2}{3}$ years D $14\frac{2}{3}$ years	
25.	What is the solution to the equation below? $$3+2.7x=9.6+3.2x$$	

Use the table for questions below.

Two Window-Washing Companies

Company	Cost
Clean Fast	$15 plus $2 per window
See Out	$5 plus $3 per window

26.	Which expressions show the cost for each company, where x is the number of windows? A Clean Fast $15x+2$ See Out $5x+3$ B Clean Fast $15+2x$ See Out $5+3x$ C Clean Fast $(15+2)x$ See Out $(5+3)x$ D Clean Fast $15+2+x$ See Out $5+3+x$	
27.	Mrs. Shepherd counts her windows and discovers the companies will charge the same amount. What can you conclude? A She gets a discount. B She has 10 windows. C She has more than 10 windows. D She had fewer than 10 windows	

Use the situation for questions below.

A red car and a blue car are traveling at the same speed. The red car drives 3 hours.
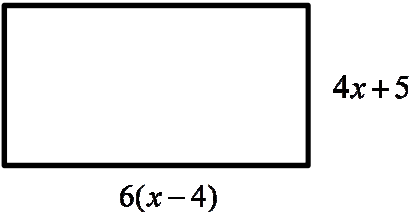The blue car drives another half hour and goes 25 more miles.

$$d = rt \quad \text{(distance = rate x time)}$$

28.	Let x be the speed of the cars. What is the distance covered by the blue car? A $0.5x$ B $3x$ C $3.5x$ D $25x$
29.	Which equation can be solved to find how fast the cars are going? A $2x-30=3.5x$ C $3x+25=3.5x$ B $3x-25=3.5x$ D $3x+30=3.5x$

30.	Solve: $3+\dfrac{3}{4}x=\dfrac{x}{2}$
31.	Use the distributive property to write an equivalent expression to the one below. $$4(5x+2-x)$$

32.	Which of the following expressions are equivalent to $7(a-b)$? There may be more than one answer. I $7a-7b$ II $7b-7a$ III $(a-b)\bullet 7$ IV $7ab$
33.	Which of the following expressions are equivalent to $4x+2y+2x$? There may be more than one answer. I $2(2x+y+x)$ II $2(3x+y)$ III $8xy$ IV $6x+2y$

34.	Sixteen less than three times the number Izabella is thinking of is -1. What number is she thinking of?
35.	Mr. Mangham loves to go to the zoo. The local zoo charges $5 to park and $12 each time he visits. He can also choose to have a membership for one year for $68 with free parking. How many times would he need to visit for the membership to have paid for itself?

36.	The perimeter of a rectangle can be found by adding the length of all four sides together. $4x+5$ $6(x-4)$ How far did Mr. Mangham walk if he walked around the perimeter of the rectangle two times?		

Define a variable, write an equation for each situation, and then solve. **Show all work.**

		V: Define Variable **E: Original Equation**	**Answer**
37.	Three consecutive **even integers** add up to -24. Find the three integers.	V: E:	
38.	Ms. Johnsen spent $331 one Saturday on make-up. Her lip stick cost four times as much as her blush. Her eye shadow cost $5 less than two times her blush. If these were the only three items she bought, how much did **each item** cost?	V: E:	

Use the distributive property (when necessary) and combine like terms to simplify each expression. **Show all work.**

39.	$5x+8-3x+2x$		40.	$5(3a+4)-4(8a-1)$	

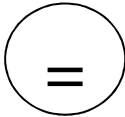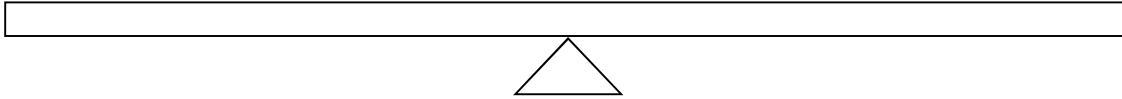| 41.	MegaMe has a height of $(8x-2)$ inches and MiniMe has a height of $(50-3x)$ inches. If MiniMe stands on MegaMe's head, what would be their combined heights?	
42.	In the question above, how much taller is MegaMe than MiniMe?	

Solve each equation. **Show all work and all steps. You do not have to check your answer**.

43.	$v + 8v - 13 = -49$		44.	$4(2x + 3) = 3x + 27$	
45.	$6b + 4 = 2b - 16$		46.	$-5(3d - 4) = -55$	

Define a variable, write an equation for each situation, and then solve. **You do not have to check.**

		V: Define Variable E: Original Equation	Answer
47.	William has a sister that is three years older than he is. Eight years from now the sum of their ages will be 193. How old is William's sister right now?	V: E:	
48.	The DIS yearbook will have pages with a perimeter of 36 inches. If the length is two inches more than the width, what are the dimensions of each page?	V: E:	
49.	Mrs. Bailey has a choice of two phone plans when she goes overseas for a month: *$60 a month plus $0.20 per text* *$40 a month plus $0.25 per text* How many texts would she need to send in a month for the price of both plans to be equal?	V: E:	

50. Use the balance below to represent the equation $3x + 2 = 2x + 4$. Then solve.

$=$

$x =$