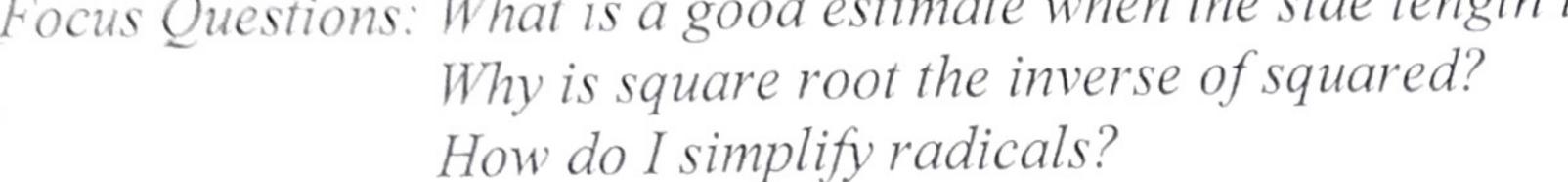
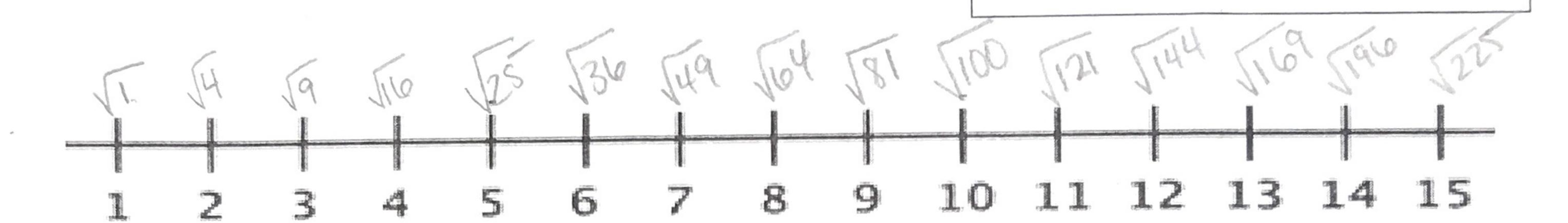
Name:	Date:	Jang	Hour:	_Alg 1
Unit 5a Day 3, 4, and 5: Working with	Squai	re Roots		
Focus Questions: What is a good estimate when the	ie side le	ength is not a perfect square?		







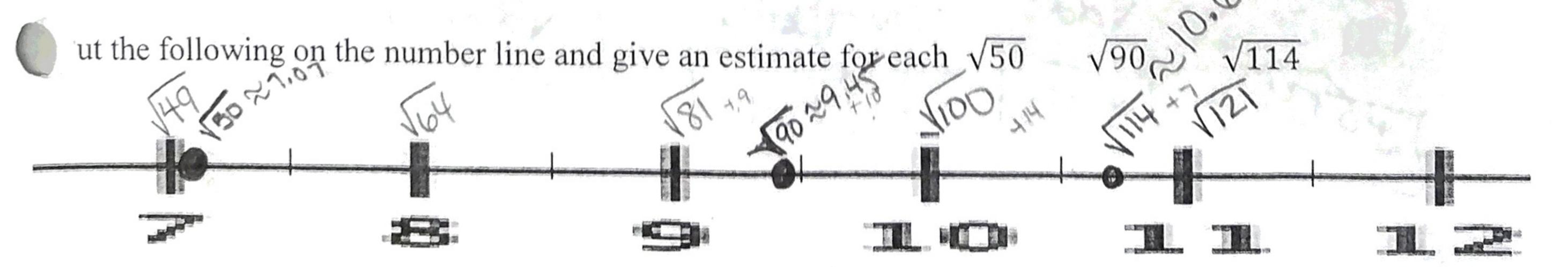
B. "Non-Perfect" Squares

Not all squares are "perfect." Previously we found the area of these squares. Fill in the table for their

area and side length. Then estimate their side length.

area and side length. Then estimate their side length.					
Square	Area	Exact Side			
		length		side length	
		$S = \sqrt{a}$ $S = \sqrt{a}$	T + 1 \frac{1}{2} + 2 \frac{1}{4}	~1.33	
· · · · · · · · · · · · · · · · · · ·	5	S= 45 S= 45	T4 +1 \(\sigma\) 5 +4 \(\sigma\) 1 \(\frac{1}{5}\) -3	~2.2	
B.	8	S=-18 150=-18 S=-18	14 + 4 18 + 1 19 1 4 5 3	22.8	
F STO	10	S= VIO	19 +1 VID +6 VII6 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	23.15	

These numbers look "weird" as answers because they are a new type of number for you. When there is a square root of a non-perfect square, for example $\sqrt{2}$, $\sqrt{6}$, or $\sqrt{94}$ they are called $\sqrt{241000}$. We will learn about classifying numbers later in the unit. For now we will learn to work with them and write them in different ways.



C. The Inverse of Squared 1. Solve: $x + 8 \neq -5$	The inverse of add is Subtract and the inverse of subtract is
-8-8	. These are inverse operations because they create the
X+O=	aditive identity (which is 0). This is the number you
[X=13	can add to/subtract from any number and not change its value.
2. Solve: $4x = -24$	The inverse of multiply is divide and the inverse of
4	divide is Multiply. These are inverse operations because they
1x	create the Multiplicative identity (which is 1). This is the
[X=-6]	number you can multiply/divide any number by and not change its value.
3. Solve $2x^2 - 6 = 12$ $\frac{46 + 49}{2x^2} = 18$	$-\sqrt{\chi^2-9} = \sqrt{\chi^2} = \frac{1}{2}$

- 4. When you solved #1, 2, and 3, what is the final exponent on x?
- 5. In #1 and 2, x started as degree 1. But in #3, x started as degree 2. So you took a power of 2 (squared) and did something to it in order to make it a power of _____. What are some rules we know about changing powers...

Product rule: example
$$x^2 \cdot x^3 = X = X$$

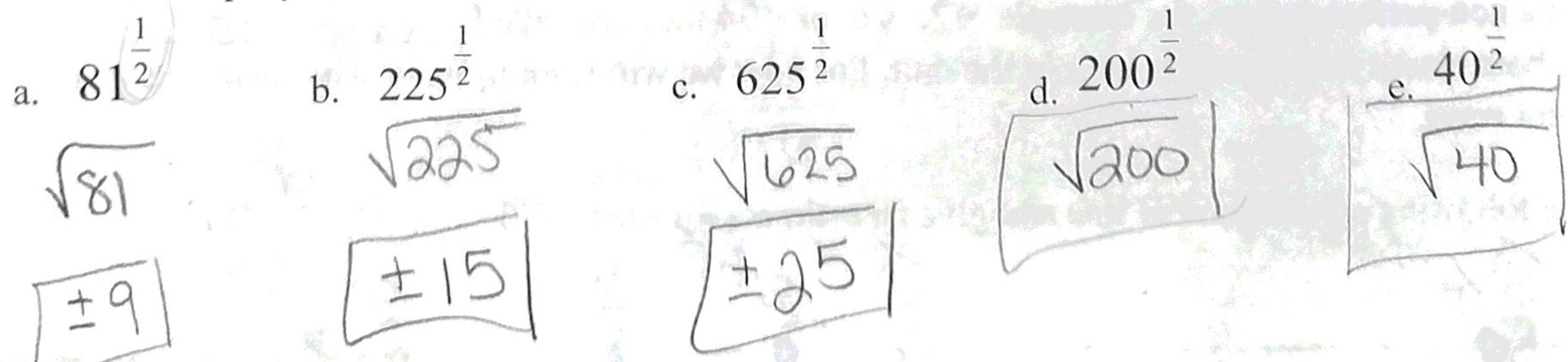
Quotient rule: Example $m^8 \div m^2 = M^{8-2} = M^{9-2}$

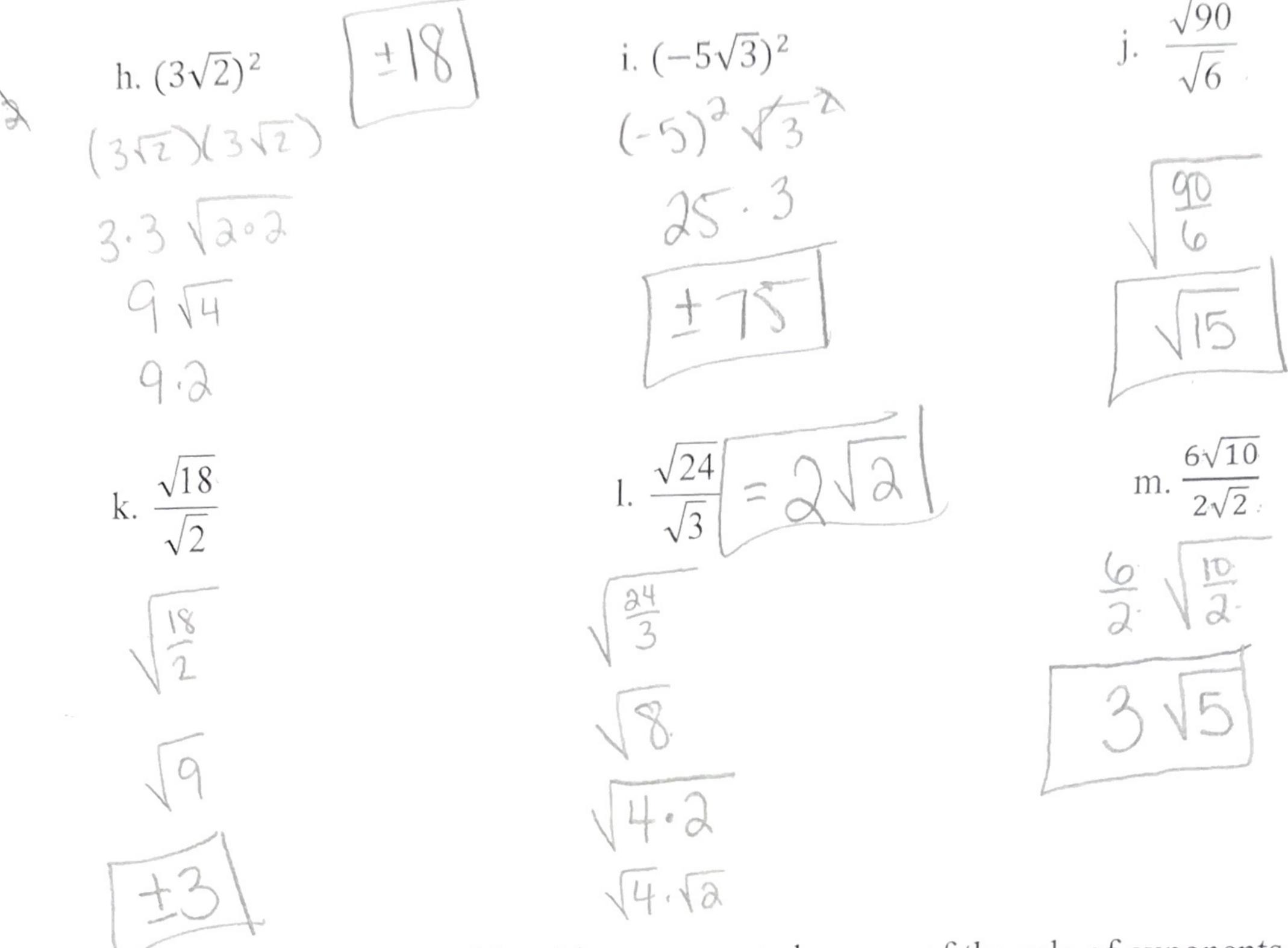
Power rule: Example $(h^5)^4 = M^{9-2} = M^{9-2}$

The <u>identity exponent</u> is _____ because you can raise any base to it and it doesn't change the value.

Taking the square root creates the identity exponent and raising squared to the $\frac{1}{2}$ power creates the identity exponent. This means that square root can also be written as the $\frac{1}{2}$ power and squared and square root are inverse operations because they create the identity exponent.

Re-write and simplify each of the following if possible.





- E. So you can multiply and divide with square roots because of the rule of exponents that involves bases with the same exponent. What about addition and subtraction...
- 1. What is x + x?

2. What is 2f + 3f?

3. What is 3r - 10r?

4. Why are you allowed to combine the binomials above into a monomial?

combine like terms" (Samevariable)

5. What is $\sqrt{2} + \sqrt{2}$? The following the first of the following the

7. What is $3\sqrt{11} - 10\sqrt{11}$?

8. Dalida claims that $\sqrt{25} + \sqrt{25} = \sqrt{50}$ because 25 plus 25 is 50. Is she right? Explain.

SO V25 + V25 is 5+5 which is 10 and 150 is not 10

9. Does x'+ y'simplify? Explain.

No they care different variables

10. Does $\sqrt{7} + \sqrt{10}$ simplify? Explain.

You will learn much more about rational (fractional) exponents in algebra II.