Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**CFS for top quality work**

* + Problem is annotated for **quantity**, **whole**, and **percent change**
	+ DNL is created and labeled
	+ Two **equivalent expressions** are **written** to find the amount after the change
	+ Expressions are **tested to be equivalent**

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

UNIT 6 LESSON 6

**AIM**: SWBAT write and solve equivalent expressions representing percent change

In my own words this means I will be able to…

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**THINK ABOUT IT!**

Draw a double number line to represent 125% of 200. Use the double number line to write and solve an expression that represents 125% of 200.

Expression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw a double number line to represent an increase of 200 by 25%. Use the double number line to write and solve an expression that represents a 25% increase on 200.

Expression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do you notice about the two problems?

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Test the Conjecture #1) Write two expressions that could be used to find the amount after the change of 60 decreased by 15%.

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Test the Conjecture #2) The number of podcasts that were created last year increased by 4% this year. If there were 10,800 podcasts that were available on iTunes last year, how many are available this year?

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Conjecture:

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| Multiple \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be used to solve the same percent increase and decrease problem |

**PARTNER PRACTICE**

**CFS for top quality work**

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**Group Leader: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| *Bachelor Level* |

1. Write two expressions that could be used to determine what 340 increased by 19% is.

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1. A dress shirt that normally costs $38.50 is on sale and being advertised as a 30% decrease. Which percent expression could be used to find the sale price of the shirt? Select all that apply.
	1. 30(38.50)
	2. 0.30(38.50)
	3. 30 - 0.3(38.50)
	4. 38.50 – 0.3(38.50)
	5. 0.7 (30)
	6. 0.7(38.50)
2. Find the new cost of the dress shirt.

My group came up with the **following question** related to today’s objective…

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Master Level* |

1. Devaunte goes to a Barnes and Noble to buy a book that is originally $14.50. Devaunte was trying to save money, so he made sure to bring a coupon that gives him 20% off of his book. Which expression(s) could you use to solve this problem? Select all that apply.
	1. 14.5 - .8(14.5)
	2. 14.5 - 0.2(14.5)
	3. 0.8(14.5)
	4. 1.2(14.5)
	5. 14.5 + 0.2(14.5)
2. Ms. Crosson makes 72 cookies for a bake sale. Ms. Johnson also makes cookies, but she makes 25% less cookies than Ms. Crosson.

Step A: Write two expressions that you could use to find out how many cookies Ms. Johnson makes for the bake sale.

Step B: How many cookies did Ms. Johnson make?

Step C: How many cookies are at the bake sale in total?

**INDEPENDENT PRACTICE**

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| *Bachelor Level* |

1. What two expressions that could be used to determine what 88 decreased by 30% is.

**CFS for top quality work**

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1. Roberto eats dinner at Bertucci’s and the total comes to $45.60. Which expression can be used to find the total price of the meal, including a 20% tip? (tip is a percent increase). Select all that apply.

**CFS for top quality work**

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	+ Expressions are **tested to be equivalent**
	1. 45.60(0.2)
	2. 45.60 + 20
	3. 45.60 + 45.60(0.2)
	4. 45.60 + 45.60(0.8)
	5. 45.60 – 45.60(0.2)
	6. 45.60(1.2)
1. What will be Roberto’s total bill?

**CFS for top quality work**

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| *Master Level* |

1. A bookshelf costs $300 normally. Today it is on sale and decreased by 20%. Which expression or expressions could you use to find the sale price? Circle all correct answers.
	1. 300 + 0.2(300)
	2. 300 - 0.2(300)
	3. 0.2(300)
	4. 300(0.8)

Explain why you chose the expression you chose.

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1. Sophia is solving the problem: Ugg boots that are first priced at $110 go on sale and are decreased by 20%. How much does Sophia save on the boots?

Sophia writes the following expression to help her solve the problem:

$$110-.20\left(110\right)$$

Sophia got $78 as her answer. Did Sophia get the correct answer? On the lines below, explain how you know. If Sophia is wrong, explain what she did wrong and write out the correct equation and answer.

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1. Explain why a percent increase of 3% is equivalent to finding 103% of a number.

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| *PhD Level* |

1. Zaria went to Coach to buy a new purse. The store is having a sale! Every bag is now 20% off. How much will Zaria spend on the purse that originally cost $490 if there is a sales tax of 6.5%?

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there.  | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there.  | You need more practice and feedback. |

1. A store is advertising a 15% decrease on all sporting equipment.

Step A: Write two different expressions that could be used to solve for the cost of any sporting equipment.

Step B: Use both of your expressions to find the cost of a $300 golf club to prove that your expressions are equivalent.

1. Tyler is trying to determine the value of a number after a 25% decrease and says that you can write the expression x – 0.25x. Rachel says that the expression has to be 1 – 0.25x. Who do you agree with and why?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_