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

UNIT 6 LESSON 8

**AIM**: SWBAT determine the original amount from a percent change

**THINK ABOUT IT!**

A number is increased by 25%. The resulting number is 100. Draw a double number line and write an equation to determine what the original number is.

Test the Conjecture #1) 150 is the amount after a 25% decrease was applied to a number. What is the number?

Test the Conjecture #2) After a 5% pay raise, Hermione is earning $22,680 per year. What was she earning before the pay raise?

Conjecture:

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|  |

**PARTNER PRACTICE**

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| *Bachelor Level* |

1. After a number is decreased by 30%, the amount after the change is 140. What is the original number?
2. After a 1% decrease from last year, Jasmine owes $495 in taxes. How much did she owe in taxes last year?

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| *Master Level* |

1. The value of a professional basketball player’s autograph increased by 20% in the last year. It is now worth $300.00. What was it worth a year ago?
	1. $260
	2. $230
	3. $250
	4. $270

**INDEPENDENT PRACTICE**

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| *Bachelor Level* |

1. A number undergoes a 25% decrease and the resulting number is 26.25.

Part A: How could you solve for the original number? Select all that apply.

a) Multiply 26.25 by 0.75

b) Divide 26.25 by 0.75

c) Using the equation $\frac{x}{26.5}=\frac{75}{100}$

d) Using the equation $\frac{26.5}{x}=\frac{75}{100}$

Part B: What is the original number?

1. After a 60% decrease of the cost of a snow jacket, the jacket costs $64. How much did the jacket cost originally. Jack thinks the snow jacket originally cost $25.60. Do you agree or disagree with his claim? Explain using evidence.

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| *Master Level* |

1. Jaime just bought his parents a new flat screen TV. The TV cost $500 after 25% increase for shipping and handling. Read each statement below and decide whether it is “true” or “false.”

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| --- | --- | --- |
| Statement | True | False |
| The TV cost more than $500 before shipping and handling |  |  |
| To find the cost of the TV before shipping and handling, we can multiply 500 by 1.25 |  |  |
| To find the cost of the TV before shipping and handling, we can divide 500 by 1.25 |  |  |
| The TV originally cost $625 |  |  |
| The TV originally cost $400 |  |  |

1. A meal at Red Lobster, including a 18% tip, cost $33.63. What was the cost of the meal before the tip was included? (Note – a tip is considered a percent increase because it increases the amount a person pays for a meal).

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| *PhD Level* |

1. A bag of marbles has 3 different colors in it. 40% of the bag has purple marbles. 70% of the striped marbles are black and white striped. If there are 7 black and white striped marbles, how many marbles are in the bag?
2. Marcia buys a dress that is on sale for 15% off its original price. She uses a store coupon to obtain an additional 10% off the sale price. Marcia pays $91.80 for the dress. What was the original price of the dress?

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

**EXIT TICKET**

|  |  |  |  |
| --- | --- | --- | --- |
| 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. The population of cats in a rural neighborhood has declined in the past year by roughly 20%. Residents hypothesize that this is due to wild coyotes preying on the cats. The current cat population in the neighborhood is estimated to be 12.

Part A: How can the mayor of the neighborhood figure out how many cats there were originally? Select all that apply.

a) Divide 12 by 0.20

b) Divide 12 by 1.20

c) Divide 12 by 0.8

d) Multiply 12 by 1.2

e) Multiply 12 by 0.8

f) Solve the following equation: $\frac{20}{100}=\frac{12}{x}$

g) Solve the following equation: $\frac{80}{100}=\frac{12}{x}$

Part B: How many cats were there originally?

1. Lu’s math score on her achievement test in seventh grade was a 650. Her math teacher told her that her test level went up by 25% from her sixth grade test score level. What was Lu’s test score level in sixth grade?