Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Proving the Solution Set for Inequalities (T/F)**

**Directions:** State **all** of the values of the variable for when the following equation/inequalities will be true and when they will be false.

1. Fill in each row of the table below.

**Ashley wants to get a new pair of shoes. Let *s* represent the cost of one pair of shoes.**

|  |  |  |  |
| --- | --- | --- | --- |
| Situation | What does this mean? | Value for s that makes the statement TRUE | Value for s that makes the statement FALSE |
| *s* = 40 |  |  |  |
| *s* < 40 |  |  |  |
| *s* ≥ 40 |  |  |  |
| 4*s* ≤ 160 |  |  |  |

1. *g* + 25 ≥ 60

True: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

False: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. $\frac{j}{5}$ = 17

True: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

False: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. $6f$ ≤ 54

True: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

False: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. $\frac{k}{4}$ > 8

True: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

False: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Writing & Graphing Inequalities**

1. Inequality: *x* ≥ -2

1. Inequality: *x* < 4

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1. Inequality: *m* ≤ 17

1. At least 35



1. No more than 20
2. Less than or equal to 8
3. Inequality: *h* ≤ 525
4. Fewer than 8
5. Inequality: 225 ≥ *h*
6. **** Inequality: *x* < 12

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

**Directions:** Substitute the indicated value of the variable, and state whether the resulting number sentence is true or false. If true, find a value that would result in a false number sentence. If false, find a value that would result in a true number sentence.

1. 45 ≤ 24 + *x*. Substitute 31 for *x*.

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1. 56 = 7*y*. Substitute 9 for *y*.

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1. $\frac{g}{5}$ > 8. Substitute 40 for *g*.

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1. *k* – 17 < 32. Substitute 50 for *k*.

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**Directions:** Choose the numbers, if any, that make the equation or inequality true from the following set of numbers: **{0, 2, 5, 9, 12, 16}**

1. 6*f* ≥ 48
2. $\frac{1}{2}$ *x* < 6
3. *g* + 12 >15
4. 22 – x = 10

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Writing & Solving Inequalities REAL-WORLD PROBLEMS**

**Directions:** Write an inequality to represent each of the following situations. Then, graph the inequality on the number line.

1. Senior citizens 65 years and older receive a discount at the Country Buffet. Let *d* represent the age of a citizen who receives the discount.

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2. I can spend no more than $12 at Chipotle. Let *m* represent the amount of money I can spend.

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3. Daniel’s mom asked him to pick out a birthday present for his brother. She said he should spend a minimum of $20 but no more than $50 on his present. Let *d* represent the number of dollars Daniel could spend on his brother’s birthday present.

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4**.** Harry’s mom is taking him back to school shopping. His mom says that she will buy him a minimum of 8 items, but less than 20 items. Let *n* represent the number of items Harry’s mom will buy her?

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5. Bob’s dad said he can go to his cousins’ house for a minimum of 45 minutes, but a maximum of 70 minutes. Let *m* represent the number of minutes Bob can be at his cousins’’ house.

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6. The maximum weight that an elevator can hold is, at most, 3,400 pounds. A group of people weighing 560 pounds enter the elevator.

a.) Write an inequality to show how many more pounds the elevator could carry.

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b.) Could 5 people, each weighing 150 pounds, fit on the elevator? Prove your answer!!

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7. On a mystery game show there are 3 boxes with equal amounts of money. The game show hosts says that in total, the three boxes have at least $4,500 in them.

a.) Write an inequality to represent the amount of money in each box. Use *b* to represent the amount of money in each box.

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b.) Can each box have $1,250? Prove your answer using any method.

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8. Kayla’s teacher tells her that her homework should take at most 45 minutes. Kayla has been working on her homework for 17 minutes. She writes the inequality to represent her situation, **45 ≥ 17 + x**,where *x* represents the time left to work.

Do you agree with Kayla’s inequality? If yes, prove Kayla’s inequality using substitution. If not, help Kayla to fix it. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Write your own word problem to represent a double inequality.

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