

Assume axioms apply to all variable on this exam.

1. Carefully simplify showing all work and showing all axioms/reasoning used.

$$10 + -4$$

2. Simplify completely:

$$3 \cdot 5 + -20 + (-1)^3$$

3. Carefully simplify showing all work and showing all axioms/reasoning used.

$$(-10 \cdot 5) + 1$$

4. Simplify completely:

$$3 \cdot 5 + 2$$

5. Simplify completely:

$$3 \cdot 5 + -20$$

SHOW ALL STEPS/w/reasoning, you may use theorems we proved prior to each of these.

6. Prove [NPT] showing all steps and reasoning: for any integers, a and b ,

$$(-a)(b) = -ab$$

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7. Prove [0MT] showing all steps and reasoning: for any integer, n ,

$$n \cdot 0 = 0$$