Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period \_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1. Evaluate** 4(*x* + 5)3 – 2*x*, when *x* = -3

**2. Solve** 

**3. Complete each proof.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **a.** | |  |  | | --- | --- | | **Statement** | **Reason** | | 4(*x* + 2) – 14 = 2*x* |  | |  | Distributive Prop. | | 4*x* – 6 = 2*x* |  | | -6 = -2*x* |  | |  | Division Prop. | | *x* = 3 |  | | **b.** | |  |  | | --- | --- | | **Statement** | **Reason** | |  |  | | 6 – 3*x* = 20 |  | |  | Subtraction Prop. | |  |  | |

**4. Given 6*x* – 8(*x* – 5) = 2*x*…**

**a.** Which of the following is a correct *statement*, based on the given above? (circle one)

**6*x* – 8*x* + 40 = 2*x*** or **6*x* – 8*x* – 40 = 2*x***

What is the *reason* this statement is true?

**b.** Which of the following is a correct *statement*, based on the given above? (circle one)

**8(*x* – 5) – 6*x* = 2*x*** or **2*x* = 6*x* – 8(*x* – 5)**

What is the *reason* this statement is true?

**c.** Which of the following is a correct *statement*, based on the given above? (circle one)

**3*x* – 4(*x* – 5) = *x*** or **3*x* – 8(*x* – 5) = *x***

What is the *reason* this statement is true?

***You MUST write an equation and solve your equation to answer the question.  
SHOW ALL WORK. Answers reached through guess‑and‑check will receive no credit.***

**5. Word Problems: Basic Translating.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **a.** | A number is increased by 5, then tripled. The result is 22. Find the number. | **b.** | 15 less than a number is two more than half that number. Find the number. |
|  |  | Equation:  Solution: |  | Equation:  Solution: |

**6. Word Problems: Consecutive Integers.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **a.** | The sum of seven consec. *odd* integers is 189. Find the middle number in this list. | **b.** | Find a set of five consec. integers so the sum of the first and *twice* the last is 200. |
|  |  | Equation:  Solution: |  | Equation:  Solution: |

**7. Geometry Word Problems: Geometry and General.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **a.** | A rectangle’s length is 2 inches shorter than three times its width. The rectangle’s perimeter is 44 inches. Find the rectangle’s length *and* width. | **b.** | An isosceles triangle has a perimeter of 19 feet. The base is one less than twice as long as a leg. Find all three side lengths. |
|  |  | Equation:  Solution: |  | Equation:  Solution: |

**8. Interpreting Expressions in Context**

The band boosters sold brownies and cupcakes at a home football game to raise money for a trip. Brownies (B) sold for $1.5 each and cupcakes sold for $2 each. Twenty more cupcakes were sold than brownies. Explain what each expression means in context of the problem.

1. B + (B + 20) **b.** 1.5B + 2(B + 20)