SHAPE ALGEBRA

Level 1

1.

$$\square + \square + \square + \square \;=\; 424$$

2.

$$\triangle + \triangle + \triangle + \triangle + 4\triangle \;=\; 864$$

3.

$$5\heartsuit + 1\heartsuit \;=\; \heartsuit + 50$$

Level 2

4.

$$4\square + 4\square \;=\; 16$$
$$16 \cdot (\square + \square) \;=$$

5.

$$\square + \triangle \;=\; 12$$
$$\square + \square + \square + \triangle + \triangle + \triangle + \triangle \;=\; 48$$
$$\square \;=$$
$$\triangle \;=$$

6.

$$\square + 2\triangle \;=\; 6$$
$$4\square + 10\triangle \;=\; 36$$
$$20\square \;=$$

Level 3

7.

$$5\diamond + 6\clubsuit = 24$$
$$\diamond + \clubsuit = 12$$
$$\diamond =$$
$$\clubsuit =$$

8.

$$5\triangle + 2\square = 18$$
$$4\triangle + 3\square = 20$$
$$\triangle + \square =$$

9.

$$x + y + z = 12$$
$$2x + y = 14$$
$$2y + 2z = 12$$
$$x =$$
$$y =$$
$$z =$$

Level 4

10.

$$x + 2x + 3x + \cdots + 200x = 1$$
$$x =$$

11. *

$$\spadesuit + 2\spadesuit + 3\spadesuit + \cdots + n\spadesuit = n$$
$$\spadesuit =$$

For some positive whole number n