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| **Generalizing and Representing Increasing and Decreasing Patterns** |
| Recognizes that a pattern increases or decreases“The terms are getting bigger.” | Identifies how a pattern changes (describes rule)“It grows by 2 tiles each time.” | Represents patterns symbolically and writes rules using addition or subtraction1, 3, 5, … “Start at 1 and add 2 each time.”17, 14, 11, … “Start at 17 and take away 3 each time.” | Extends patterns using repeated addition and subtraction357 –  9 = 348357 – 12 = 345357 – 15 = 342357 – 18 = 339“I added 3 to the number taken away and subtracted 3 from the difference.” |
| **Observations/Documentation** |
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| Finds missing terms or errors in patterns3, 8, 13, 18, 22, 28, …. “Start at 3 and add 5 each time. 18 + 5 = 23, so 22 should be 23.”32, 28, ★, 20, 16, 12, 8, …. “Start at 32 and subtract 4 each time. 28 – 4 = ★, so ★ is 24.” | Creates patterns and explains pattern rules“85, 75, 65, 55, ….I started with my house number and took away 10 each time.” | Uses patterns to solve problems“If I save 2 quarters a day, when will I have 10 quarters?2, 4, 6, 8, 10I will have 10 quarters after 5 days.” | Identifies and extends patterns involving multiplication “Each input number is multiplied by 2.” |
| **Observations/Documentation** |
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| **Identifying Equivalent Expressions** |
| Models expressions concretely to determine equivalence“I could trade rods for other rods to make both models look the same. So, 2 × 8 and 4 × 4 are equivalent.” | Use number relationships or mental math strategies to determine equivalence9 + 7 and 42 – 27“9 + 7: take 1 from 9 and give it to 7 to make 8 + 8, or 16.42 – 27: add 3 to each number to make 45 – 30, or 15.Since 15 doesn’t equal 16, the expressions are not equivalent.” | Uses equal sign as balance (left side equals right side) and not equal sign as imbalance2 × 8 = 4 × 49 + 7 ≠ 42 − 27“The equal sign means that the expressions on both sides are worth the same amount.” | Records an equation with an unknown to match a given situation“I started with 12 stickers. My friend gave me some more. Now I have 21 stickers. 12 + ■ = 21 I used a box to represent the unknown, but I could have used a different shape.” |
| **Observations/Documentation** |
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