Chapter 6 Problem Wrap-Up

Student Text Page
275

Suggested Timing
80 min

Related Resources
BLM 6.CP.1 Chapter 6 Problem Wrap-Up Rubric

Summative Assessment

- Use **BLM 6.CP.1 Chapter 6 Problem Wrap-Up Rubric** to assess student achievement.

Teaching Suggestions

- You may wish to use the Chapter Problem Wrap-Up as a summative assessment. If you have used the Chapter Problem questions throughout the chapter, then the Chapter Problem Wrap-Up question will consolidate the Chapter Problem questions.
- You may, however, wish to use all the Chapter Problem questions as a summative piece at the end of the chapter.

Level 3 Sample Response

a), b)

A			
x	y	First Differences	Second Differences
−5.5	0		
−5	7.2		
−4	9.8	$9.8 - 7.2 = 2.6$	
−3	10.8	$10.8 - 9.8 = 1$	$1 - 2.6 = -1.6$
−2	11.2	$11.2 - 10.8 = 0.4$	$0.4 - 1 = -0.6$
−1	11.3	$11.3 - 11.2 = 0.1$	$0.1 - 0.4 = -0.3$
0	11.5	$11.5 - 11.3 = 0.2$	$0.2 - 0.1 = 0.1$
1	11.3	$11.3 - 11.5 = -0.2$	$-0.2 - 0.2 = -0.4$
2	11.2	$11.2 - 11.3 = -0.1$	$-0.1 - (-0.2) = 0.1$
3	10.8	$10.8 - 11.2 = -0.4$	$-0.4 - (-0.1) = -0.3$
4	9.8	$9.8 - 10.8 = -1$	$-1 - (-0.4) = -0.6$
5	7.3	$7.3 - 9.8 = -2.5$	$-2.5 - (-1) = -1.5$
5.5	0	0	0

B			
x	y	First Differences	Second Differences
−4.5	0		
−4	3		
−3	6.8	$6.8 - 3 = 3.8$	
−2	8.8	$8.8 - 6.8 = 2$	$2 - 3.8 = -1.8$
−1	9.8	$9.8 - 8.8 = 1$	$1 - 2 = -2$
0	10	$10 - 9.8 = 0.2$	$0.2 - 1 = -0.8$
1	9.8	$9.8 - 10 = -0.2$	$-0.2 - 0.2 = -0.4$
2	8.8	$8.8 - 9.8 = -1$	$-1 - (-0.2) = -0.8$
3	6.8	$6.8 - 8.8 = -2$	$-2 - (-1) = -1$
4	3	$3 - 6.8 = -3.8$	$-3.8 - (-2) = -1.8$
4.5	0		

c) First differences are not constant, so the relation that models the shape of each jawbone is not linear. Second differences are also not constant, so the relation is not quadratic. A quadratic relation would better approximate the shape of each jawbone than would a linear relation.

d) A: (0, 11.5)
B: (0, 10)

e) A: $x = 0$
B: $x = 0$

f) A: −5.5 and 5.5
B: −4.5 and 4.5

Level 3 Notes

Look for the following:

- Students create an effective plan and carry it out. The solution is well organized.
- Students demonstrate an understanding of how to read ordered pairs from a graph.
- Students create tables of values.
- Students show an understanding of the features of a quadratic relation.
- Students draw appropriate conclusions about the factors contributing to the differences in the two jawbones.

What Distinguishes Level 2

At this level, look for the following:

- Students create a less effective plan and do not necessarily carry it through effectively.
- Students create tables of values that may contain some points read incorrectly, demonstrating a limited understanding of how to read ordered pairs from a graph.
- Some of the features represented by the jawbones will be stated incorrectly/inaccurately, demonstrating some lack of understanding of the features of a quadratic relation.
- Students draw somewhat inappropriate conclusions about the factors contributing to the differences in the two jaw bones.

What Distinguishes Level 4

At this level, look for the following:

- The plan shows signs of insight into the reasoning behind the problem.
- The solution follows the plan and is highly organized.
- Students show an insight into why they have created a mathematical model of the two jaw bones by hypothesizing on how their model may be used to compare these jaw bones to others that have been/will be found, or how the model may be used to extrapolate other scientific and philosophical information.