Reviewing Quadratic Relations: Days 1 to 5 — Hints

Stuck? Read the hint for that question, then go back and try again. Each hint points back to an idea we met in Days 1 to 5. It does not give you the answer.

Question 1

Recall the summary Relations and Models: which variable is controlled, or the one we predict *from*? For d) and e), recall what that summary says about predictions inside and outside the data, and read the new fact in e) carefully.

Question 2

For a), recall how the summary Relations and Models chooses the independent variable when nothing is controlled. For b), reread "When a model is not justified" in the worked example.

Question 3

Recall the rule in the summary Quadratic Relations and Finite Differences.

Question 4

Recall the rule in the summary Quadratic Relations and Finite Differences. Which columns does the rule look at?

Question 5

Recall the words in the summary Quadratic Relations and Finite Differences: vertex, axis of symmetry, opens up or down, maximum or minimum value, and y-intercept. For b), recall how that summary finds the y-intercept from the equation.

Question 6

Reread the worked example above Question 6. Start at the vertex, then step out the way we did for $y = x^2$.

Question 7

Recall from the summary The Parent Parabola and Vertical Translations what k changes and what it leaves alone. For the number of crossings, picture where the vertex sits and which way the parabola opens.

Question 8

Use the table of $y = x^2$ in the worked example above Question 6, and recall where the vertex of $y = x^2 - 14$ sits.

Question 9

Recall from the summary Stretches, Compressions, Reflections, and the Step Pattern how the size and the sign of a change the graph. Each step for $y = x^2$ is multiplied by a.

Question 10

Reread the worked example above Question 9. Stop stepping when the next point would leave the grid.

Question 11

Recall from the summary Stretches, Compressions, Reflections, and the Step Pattern how the steps $1a$, $3a$, $5a$ come from the steps for $y = x^2$. For c), recall the rule in the summary Quadratic Relations and Finite Differences.

Question 12

Recall from the summary Transformations of the Quadratic Relation what a, h, and k each tell you. Watch the sign of h when the bracket has a plus sign.

Question 13

Reread the worked example above Question 12. Find the vertex first, then use the steps $1a$, $3a$, $5a$ on each side.

Question 14

Recall the order in the summary Transformations of the Quadratic Relation: stretch or compress by the size of a (reflect if $a < 0$), then translate.

Question 15

Recall from the summary Transformations of the Quadratic Relation what h, k, and a each tell you. Check each of Lin's claims.

Question 16

Recall what the summary Quadratic Relations and Finite Differences says about measured data.

Question 17

Recall what "the same shape as $y = x^2$" tells you about a.

Question 18

Recall the "Four Ways to Describe a Relation" box in the summary Transformations of the Quadratic Relation, and use it as a model.

Question 19

Recall from the summary Stretches, Compressions, Reflections, and the Step Pattern what the size and the sign of a each do to the graph.