LESSON MAKER PRO

Find the Parent

Trace each graph or equation back to its simplest form.

HIGH SCHOOL · FA.F.19

FA.F.19 "Create and identify the parent function for linear and quadratic functions in the Coordinate Plane."

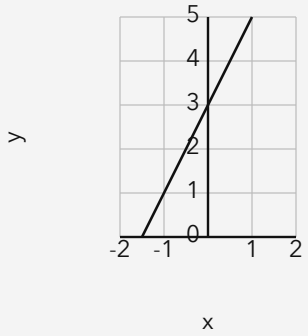
NAME _____ DATE _____

THE BIG IDEA

A linear function has a straight-line graph and parent function y = x. A quadratic function has a parabola-shaped graph and parent function $y = x^2$. Changes to slope, position, or direction do not change which parent function it has.

WORKED EXAMPLE

Identify the parent function of the graphed line.



1. The graph is a straight line.
2. Straight lines have the linear parent function.

Answer: y = x

PRACTICE 4 problems

1 For y = 5x - 4, write the parent function and its y-value at x = 4.

ANSWER _____

2 For $y = (x - 6)^2 + 9$, write the parent function and its y-value at x = -4.

ANSWER _____

3 For y = -8x + 6, write the parent function and a point on it with x = -5.

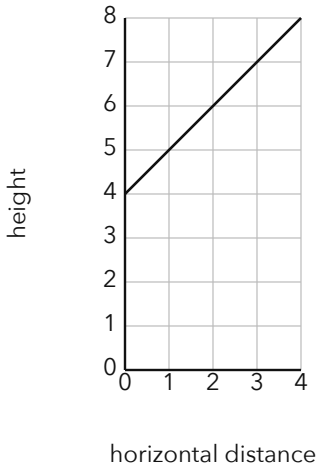
ANSWER _____

4 For $y = 4(x + 5)^2 - 6$, write the parent function and a point on it with x = -5.

ANSWER _____

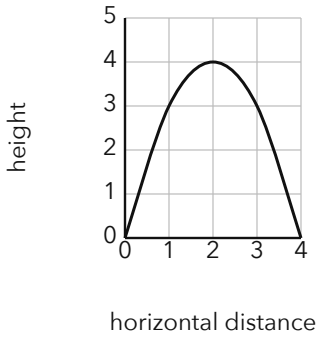
APPLY IT Show your work

1 A skate park designer graphs a ramp profile. Identify the graph's parent function and give its y-value at x = 4.



ANSWER _____

2 A game designer graphs a ball's path. Identify the graph's parent function and give its y-value at x = -4.



ANSWER _____

CHALLENGE One step up

A quadratic function is $y = a(x - 5)^2 - 6$. Its value at $x = 6$ is -10. Find a and write the parent function.

WORK SPACE AND ANSWER

ANSWER KEY # Find the Parent

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	For $y = 5x - 4$, write the parent function and its y-value at $x = 4$.	**$y = x$; 4**
2	For $y = (x - 6)^2 + 9$, write the parent function and its y-value at $x = -4$.	**$y = x^2$; 16**
3	For $y = -8x + 6$, write the parent function and a point on it with $x = -5$.	**$y = x$; (-5, -5)**
4	For $y = 4(x + 5)^2 - 6$, write the parent function and a point on it with $x = -5$.	**$y = x^2$; (-5, 25)**

PART 2 · APPLY IT

1. **$y = x$; 4** The ramp profile is a line, so its parent is $y = x$. At $x = 4$, that parent has $y = 4$.
2. **$y = x^2$; 16** The path is a parabola, so its parent is $y = x^2$. At $x = -4$, the parent has $y = 16$.

CHALLENGE

$a = -4$; $y = x^2$

Accept equivalent notation for a function or an ordered pair. Values requested for a parent function must come from the parent, not the given graph or equation.