Iteration

Exit ticket ANSWERS Name _____

1 $x_0 = 2$ and $x_{n+1} = \frac{x_n + 22}{4}$

Find x_1 and x_2.

$x_1 = 6, x_2 = 7$

2 $x_0 = 1$ and $x_{n+1} = \sqrt{x_n + 11}$

Find x_1 and x_2 to 3 decimal places.

$x_1 = 3.464, x_2 = 3.803$

3 $x_0 = 2$ and $x_{n+1} = \sqrt{x_n + 5}$

Keep going until two values in a row agree to 2 decimal places. Write the solution.

2.79

The Maths Habit

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TESTS One turn at a time: the value you have goes in

LOOK FOR *$x_1 = 7.5$* divided only the 22 by 4, not 2 + 22

$x_2 = 6$ put $x_0 = 2$ in again: x_2 comes from $x_1 = 6$

FIX IT

$x_0 = 3$ and $x_{n+1} = \frac{x_n + 15}{3}$. Find x_1 and x_2. *$x_1 = 6$, $x_2 = 7$*

---

2 $x_0 = 1$ and $x_{n+1} = \sqrt{x_n + 11}$

Find x_1 and x_2 to 3 decimal places.

$x_1 = 3.464$, $x_2 = 3.803$

TESTS The ANS key, each value to 3 decimal places

LOOK FOR *$x_1 = 12$* square rooted only the 1, not 1 + 11

$x_1 = 3.46$ not to 3 decimal places: 3.464

FIX IT

$x_0 = 2$ and $x_{n+1} = \sqrt{x_n + 14}$. Find x_1 and x_2 to 3 decimal places. *$x_1 = 4$, $x_2 = 4.243$*

---

3 $x_0 = 2$ and $x_{n+1} = \sqrt{x_n + 5}$

Keep going until two values in a row agree to 2 decimal places. Write the solution.

2.79

TESTS Keep going until two values in a row agree to 2 decimal places

LOOK FOR *2.77* stopped too soon: $x_2 = 2.77$ and $x_3 = 2.79$ do not agree

2.7904 not rounded: the solution is to 2 decimal places

FIX IT

$x_0 = 2$ and $x_{n+1} = \sqrt{x_n + 8}$. Keep going until two values in a row agree to 2 decimal places. *3.37*