UNIT 2 - LESSON 2

READY SET GO Name Period Date

READY

Topic: Solving for a variable

Solve for *x*.

1. $17 = 5x + 2$
$15 = 5x$
$3 = x$

2. $2x^2 - 5 = 3x^2 - 12x + 31$
$0 = x^2 - 12x + 36$
$0 = (x-6)^2$
$6 = x$

3. $11 = \sqrt{2x+1}$
$121 = 2x + 1$
$120 = 2x$
$60 = x$

4. $\sqrt{x^2 + x - 2} = 2$
$x^2 + x - 2 = 4$
$x^2 + x - 6 = 0$
$(x+3)(x-2) = 0$ $x = -3$ $x = 2$

5. $-4 = \sqrt[3]{5x+1}$
$-64 = 5x + 1$
$-65 = 5x$
$-13 = x$

6. $\sqrt[3]{352} = \sqrt[3]{7x^2 + 9}$
$352 = 7x^2 + 9$
$0 = 7x^2 - 343$
$0 = 7(x^2 - 49)$
$0 = 7(x-7)(x+7)$ $x = \pm 7$

7. $9^x = 243$
$3^{2x} = 3^5$
$2x = 5$
$x = 5/2$

8. $5^x = \frac{1}{125}$
$5^x = 5^{-3}$
$x = -3$

9. $4^x = \frac{1}{32}$
$2^{2x} = 2^{-5}$
$2x = -5$
$x = -5/2$

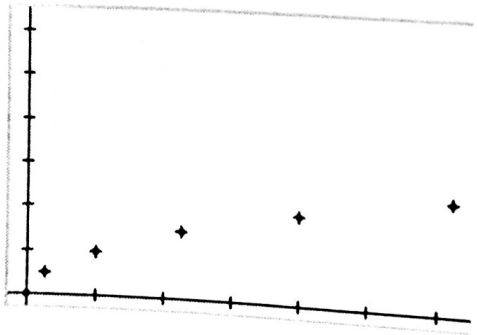
SET

Topic: Exploring inverse functions

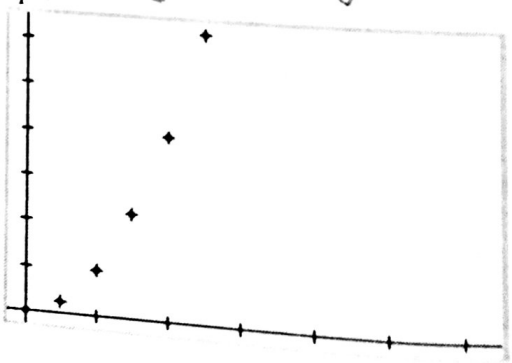
10. Students were given a set of data to graph. After they had completed their graphs, each student shared his graph with his shoulder partner. When Ethan and Emma saw each other's graphs, they exclaimed together, "Your graph is wrong!" Neither graph is wrong. Explain what Ethan and Emma have done with their data.

They switched the domain & range (x's & y's)

Ethan's graph



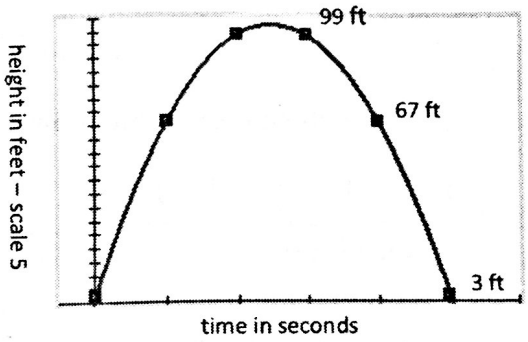
Emma's graph



11. Describe a sequence of transformations that would take Ethan's graph onto Emma's.

- Switch the x & y in each ordered pair
- Graph the new ordered pairs
(∴ Reflect over the line y=x)

12. A baseball is hit upward from a height of 3 feet with an initial velocity of 80 feet per second (about 55 mph). The graph shows the height of the ball at any given second during its flight.
Use the graph to answer the questions below.



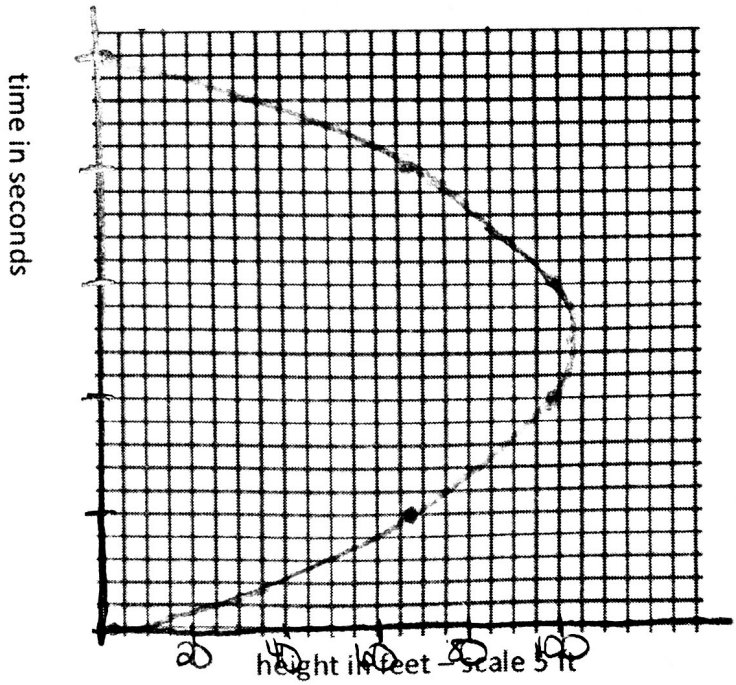
a. Approximate the time that the ball is at its maximum height. 2.5 seconds

b. Approximate the time that the ball hits the ground. slightly more than 5 seconds (5.037 sec)

c. At what time is the ball 67 feet above the ground? 1 & 4 seconds

d. Make a new graph that shows the time when the ball is at the given heights.

e. Is your new graph a function? Explain.



GO

Topic: Using function notation to evaluate a function

The functions $f(x), g(x), and\ h(x)$ are defined below.

$f(x) = 3x$ $\quad$ $g(x) = 10x + 4$ $\quad$ $h(x) = x^2 - x$

Calculate the indicated function values. Simplify your answers.

13. $f(7)$
$= 3(7) = 21$

14. $f(-9)$
$= 3(-9) = -27$

15. $f(s)$
$= 3s$

16. $f(s-t)$
$= 3s - 3t$

17. $g(7)$
$= 10(7) + 4$
$= 74$

18. $g(-9)$
$= 10(-9) + 4$
$= -86$

19. $g(s)$
$= 10s + 4$

20. $g(s-t)$
$= 10s - 10t + 4$

21. $h(7)$
$= 7^2 - 7$
$= 42$

22. $h(-9)$
$= (-9)^2 - (-9)$
$= 90$

23. $h(s)$
$= s^2 - s$

24. $h(s-t)$
$= (s-t)^2 - (s-t)$
$= s^2 - 2st + t^2 - s + t$