Do Now:

If a sequence is defined recursively by $f(0) = 2$ and $f(n+1) = -2f(n) + 3$ for $n \geq 0$, then $f(2)$ is equal to

1) 1
2) −11
3) 5
4) 17

n=0

$f(1) = -2(2) + 3$

$-4 + 3$

$f(1) = -1$

n=1

$f(2) = -2(-1) + 3$

$2 + 3$

$f(2) = 5$

May 25-1:45 PM

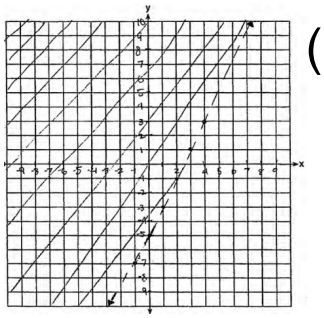
19. 4
20. 4
21. 1
22. 1
23. 2
24. 3

25. No he is incorrect. They are the same line.

26. About 3.5 hours

27. $y \geq 0.25$

28. Jacob is incorrect. Every time a rational & an irrational # are added the result is irrational.

29.  (0,0)

30. $C = 1.29 + .99(s - 1)$

$C = 51.78$

no

31. 68 miles/hr

32. Both are incorrect, the circle is not a function because it fails the vertical line test. Multiple x-values can match to one y-value but not the opposite

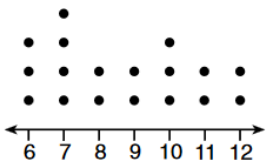
May 29-11:30 AM

19 The daily cost of production in a factory is calculated using $c(x) = 200 + 16x$, where x is the number of complete products manufactured. Which set of numbers best defines the domain of $c(x)$?

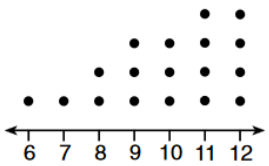
(1) integers
(2) positive real numbers
(3) positive rational numbers
(4) whole numbers

May 29-10:49 AM

20 Noah conducted a survey on sports participation. He created the following two dot plots to represent the number of students participating, by age, in soccer and basketball.



Soccer Players' Ages



Basketball Players' Ages

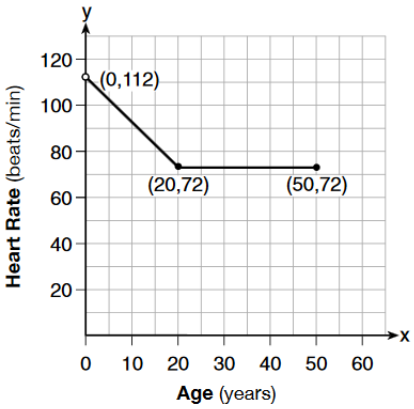
Which statement about the given data sets is correct?

(1) The data for soccer players are skewed right.
(2) The data for soccer players have less spread than the data for basketball players.
(3) The data for basketball players have the same median as the data for soccer players.
(4) The data for basketball players have a greater mean than the data for soccer players.

Jun 12-7:02 AM

21 A graph of average resting heart rates is shown below. The average resting heart rate for adults is 72 beats per minute, but doctors consider resting rates from 60-100 beats per minute within normal range.

Average Resting Heart Rate by Age



Which statement about average resting heart rates is *not* supported by the graph?

(1) A 10-year-old has the same average resting heart rate as a 20-year-old.

(2) A 20-year-old has the same average resting heart rate as a 30-year-old.

(3) A 40-year-old may have the same average resting heart rate for ten years.

(4) The average resting heart rate for teenagers steadily decreases.

Jun 12-7:02 AM

22 The method of completing the square was used to solve the equation $2x^2 - 12x + 6 = 0$. Which equation is a correct step when using this method?

(1) $(x - 3)^2 = 6$

(2) $(x - 3)^2 = -6$

(3) $(x - 3)^2 = 3$

(4) $(x - 3)^2 = -3$

$\left(\frac{b}{2}\right)^2$

$\frac{2x^2}{2} - \frac{12x}{2} + \frac{6}{2} = \frac{0}{2}$

$x^2 - 6x + 3 = 0$

$x^2 + bx = c$

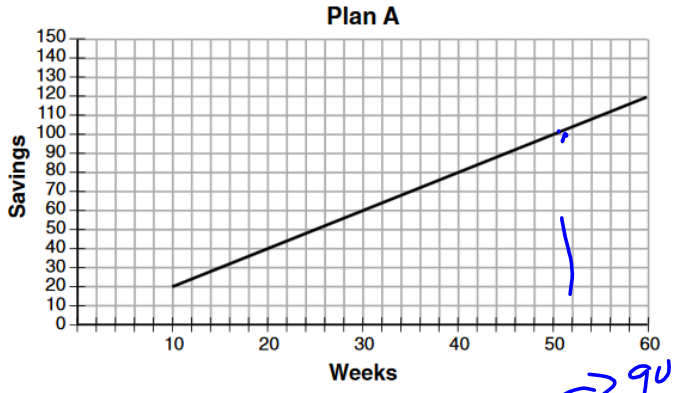
$x^2 - 6x = -3$

$x^2 - 6x + 9 = -3 + 9$

$(x - 3)^2 = 6$

Jun 12-7:02 AM

23 Nancy works for a company that offers two types of savings plans. Plan *A* is represented on the graph below.



quadratic

Plan *B* is represented by the function $f(x) = 0.01 + 0.05x^2$, where x is the number of weeks. Nancy wants to have the highest savings possible after a year. Nancy picks Plan *B*.

Her decision is

(1) correct, because Plan *B* is an exponential function and will increase at a faster rate

(2) correct, because Plan *B* is a quadratic function and will increase at a faster rate

(3) incorrect, because Plan *A* will have a higher value after 1 year

(4) incorrect, because Plan *B* is a quadratic function and will increase at a slower rate

Jun 12-7:03 AM

24 The 2014 winner of the Boston Marathon runs as many as 120 miles per week. During the last few weeks of his training for an event, his mileage can be modeled by $M(w) = 120(.90)^{w-1}$, where w represents the number of weeks since training began. Which statement is true about the model $M(w)$?

(1) The number of miles he runs will increase by 90% each week.

(2) The number of miles he runs will be 10% of the previous week.

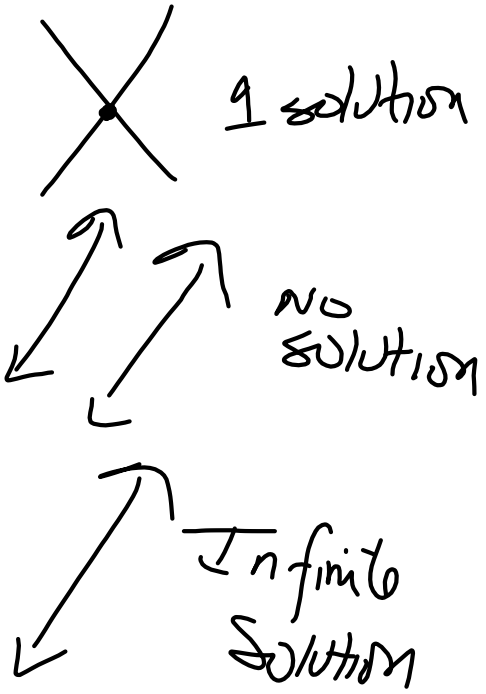
(3) $M(w)$ represents the total mileage run in a given week.

(4) w represents the number of weeks left until his marathon.

May 29-10:49 AM

25 In attempting to solve the system of equations $y = 3x - 2$ and $6x - 2y = 4$, John graphed the two equations on his graphing calculator. Because he saw only one line, John wrote that the answer to the system is the empty set. Is he correct? Explain your answer.

Wrong



May 29-10:49 AM

26 A typical marathon is 26.2 miles. Allan averages 12 kilometers per hour when running in marathons.

Determine how long it would take Allan to complete a marathon, to the *nearest tenth of an hour*. Justify your answer.

1 km = .62 miles

26.2 miles → km

$\frac{26.2 \text{ miles}}{x \text{ km}} = \frac{.62}{1 \text{ km}}$

3.5 hrs

12 km (.62)

7.44 miles per hr

Speed = $\frac{\text{Distance}}{\text{time}}$

$7.44 = \frac{26.2}{x}$

$7.44x = 26.2$

May 29-10:52 AM

27 Solve the inequality below:

$$1.8 - 0.4y \geq 2.2 - 2y$$

$+2y \quad +2y$

$1.8 + 1.6y \geq 2.2$

$-1.8 \quad -1.8$

$\frac{1.6y}{1.6} \geq \frac{.4}{1.6}$

$y \geq .25$

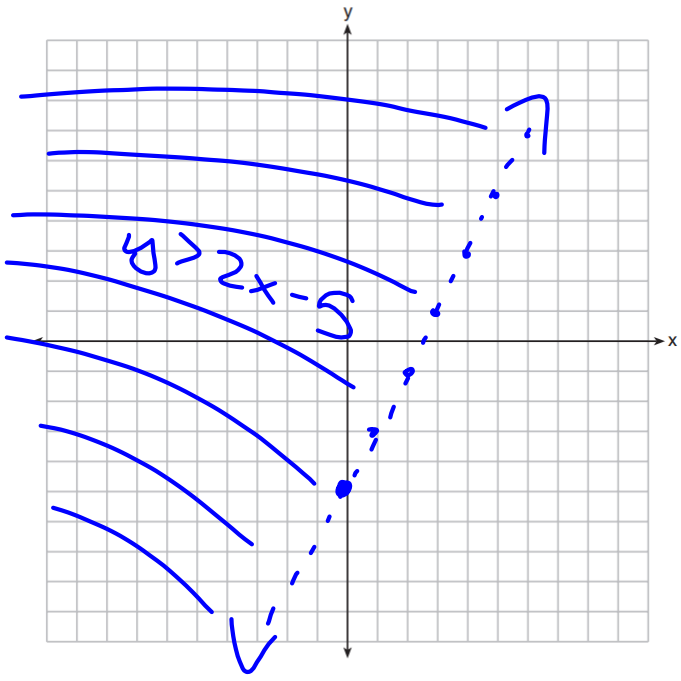
$\frac{1}{4}$

May 29-10:49 AM

28 Jakob is working on his math homework. He decides that the sum of the expression $\frac{1}{3} + \frac{6\sqrt{5}}{7}$ must be rational because it is a fraction. Is Jakob correct? Explain your reasoning.

May 29-10:53 AM

29 Graph the inequality $y > 2x - 5$ on the set of axes below. State the coordinates of a point in its solution.



May 29-10:53 AM

30 Sandy programmed a website's checkout process with an equation to calculate the amount customers will be charged when they download songs.

The website offers a discount. If one song is bought at the full price of \$1.29, then each additional song is \$.99.

State an equation that represents the cost, C, when s songs are downloaded.

x	y
1	1.29
2	2.28
3	3.27
4	4.26

Sequence

$a_1 + d(n-1)$

$C(s) = 1.29 + .99(s-1)$

Sandy figured she would be charged \$52.77 for 52 songs. Is this the correct amount? Justify your answer.

May 29-10:49 AM

31 A family is traveling from their home to a vacation resort hotel. The table below shows their distance from home as a function of time.

Time (hrs)	0	2	5	7
Distance (mi)	0	140	375	480

Determine the average rate of change between hour 2 and hour 7, including units.

May 29-10:49 AM

32 Nora says that the graph of a circle is a function because she can trace the whole graph without picking up her pencil.

Mia says that a circle graph is *not* a function because multiple values of x map to the same y-value.

Determine if either one is correct, and justify your answer completely.

May 29-10:55 AM