

# Skills for Living – Week 4

April 28 – May 1, 2020 -- Due May 4 by 9:00 AM

Essential Question: How do I get into college?

Learning Targets: We are learning about the ACT and SAT so that we can be prepared when we actually take the tests.

We are learning to express ourselves in writing on a college application so that we will stand out to the admissions committee.

Success Criteria: I can explain how the Coronavirus pandemic has changed the way I enjoy sports.

I can demonstrate my math skills on the SAT Math Test.

I can reflect on my performance on the SAT Math Test.

I can demonstrate my knowledge of the SAT in a quiz game.

I can express myself in writing on a college application.

## YOUR ASSIGNMENTS (please read to the end before you start working!):

1) NYT Weekly Writing Prompt: How Are You Getting Your Sports Watching Fix?

Click here to access your [Weekly Writing Prompt from the New York Times](#). There are a lot of questions; you do not have to answer them all. Use the questions to guide your thinking, and write a response to the prompt (at least 150 words).

- You can send your response in either an email to me ([smitha@luhsd.net](mailto:smitha@luhsd.net)); a Google Doc shared with me; a Word Document emailed to me; or you can write your answers on a piece of paper (in [cursive!](#)), take a good picture, and email it to me or share it with me on the Remind.
- Be sure to write at least 150 words! I am really interested in your opinions on these topics!

2) SAT Math Test – Calculator section

This week we are finishing up the SAT practice tests. There are two math sections on the SAT, one where a calculator is allowed and one where it is not. (We are skipping Section 3, the no-calculator test.)

- [Click here](#) to access the SAT Math Test. You do not need to print it (unless you want to).
  - Only do #1-8 and #31-34. The last four problems on the test are student-produced response questions, meaning that you will have to come up with your own answers (they are not multiple choice). Be sure you read the directions in the test for how to answer these questions!
  - You may use a calculator, and you will probably need scratch paper to show your work.
  - You may record your answers on a piece of binder paper, on a Google Doc, on a Word Document, or in an email to me.

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- Set a timer for **18 minutes** and begin the test. Make sure you read the directions at the top of the page!
- Do your best to answer all the questions in 18 minutes, but if you can't, remember to guess on the ones you don't know! **DON'T LEAVE ANY ANSWERS BLANK!** There is no penalty for wrong answers on the SAT, so if you are running out of time, **GUESS!**
- Once you have finished the Math test, correct your answers with the [SAT Math Test answer key](#).
  - I expect to see evidence that you corrected your work.
    - For example, if you wrote your answers on paper, make a mark next to the questions you got wrong. You do not have to fix your work or erase your original answer; just mark it so that I know you missed that one.
    - If you wrote your answers in a Google Doc, as another example, make a note next to the ones you got wrong. Again, don't change your original answers, just mark the ones you got wrong.
    - If you didn't get any questions wrong—great job! Write that somewhere on your paper/document.
    - If you turn in just your answers with no evidence that you corrected your test, **you will not get full credit.**
- After you correct your work, answer the following questions:
  - What did you think of the SAT Math test?
  - Was it easy for you, or did you find it difficult?
  - How was it compared to the ACT Math test?
  - Did you have a strategy for answering as many questions as possible, including the student-produced response (grid-in) questions at the end?
  - Did anything about the test surprise you?

Respond to EVERY QUESTION in either an email to me ([smitha@luhsd.net](mailto:smitha@luhsd.net)); Google Doc shared with me; Word Document emailed to me; or write your answers on a piece of paper (in [cursive!](#)), take a good picture, and email it to me or share it with me on the Remind.

## 3) The SAT: What do you know? – Kahoot

We're almost done with the SAT! One last Kahoot! 😊

- [Click here](#) to go to a Kahoot Challenge about the SAT on the Kahoot website (if you are going to use a computer).
- If you are going to use your phone like we would in class, go to **Kahoot.it** and type in the code **01172819**.

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- PLEASE JOIN THE KAHOOT USING YOUR REAL NAME, NOT A NICKNAME. Kahoot will give me feedback about the game once everyone has played, so I need to know your REAL NAME so I can give you your credit for this activity. **Fake names / nicknames will receive no credit!**
- The Challenge is not timed, so really think about your answers and do your best.
- **If you are not able to play the Kahoots for any reason, please let me know!**

If you didn't yet play the ACT vs. SAT Kahoot Challenge from last week, the game is still active:

- Click [here](#) to go to a Kahoot Challenge about the ACT vs. SAT on the Kahoot website (if you are going to use a computer).
- If you are going to use your phone like we would in class, go to **Kahoot.it** and type in the code **07058442**.

4) Personal Insight Question: Rough draft (if not already finished)

- This was assigned a long time ago, but many of you still haven't submitted your work. I will still accept this assignment.
- [Here](#) is the list of Personal Insight Questions; pick ONE and write between 100 and 350 words about it into a Google Doc. When you are finished, share it with me at [smitha@luhsd.net](mailto:smitha@luhsd.net) (set it so that I have permission to EDIT or SUGGEST on your document), and I will make comments.
- If you didn't submit your PIQ before break, do so now and STOP HERE. DO NOT go on to #5 below if you have not yet received comments from me on your Google Doc.

5) Personal Insight Question: Final draft (if not already finished)

- If you submitted your PIQ as a Google Doc already—good job, thank you!
- Your next step is to review my comments and suggestions on your Google Doc. Accept or reject my suggestions as you see fit, resolve the comments, and then follow [these](#) directions on how to submit your final draft as a PDF.

**\*\* Please combine your assignments into as few emails as possible. That is, try not to send me separate emails for each assignment. Combine your work on these assignments into one email or Google Doc. \*\***

# *How Are You Getting Your Sports Watching Fix?*

Now that almost all sporting events are locked down, what are you doing?



- Are you a sports fan? How are you getting your sports fix? Are you watching virtual games played by pro athletes? Backyard tennis from Connecticut? Or living without it completely and dreaming of the day live sports return?
- It's April, traditionally the beginning of baseball season. The N.B.A. season would be wrapping up and starting its playoffs. What would you normally be watching?
- How hard has it been to live without sports? What are you missing most? The competition? The players? Or has it been easy for you to live without sports?



# Math Test – Calculator

55 MINUTES, 38 QUESTIONS

Turn to Section 4 of your answer sheet to answer the questions in this section.

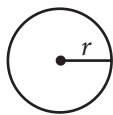
## DIRECTIONS

For questions 1-30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. For questions 31-38, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 31 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

## NOTES

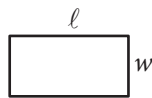
- The use of a calculator **is permitted**.
- All variables and expressions used represent real numbers unless otherwise indicated.
- Figures provided in this test are drawn to scale unless otherwise indicated.
- All figures lie in a plane unless otherwise indicated.
- Unless otherwise indicated, the domain of a given function  $f$  is the set of all real numbers  $x$  for which  $f(x)$  is a real number.

## REFERENCE

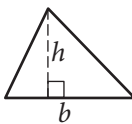


$$A = \pi r^2$$

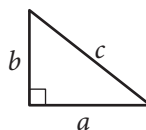
$$C = 2\pi r$$



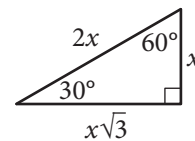
$$A = \ell w$$



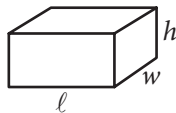
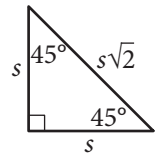
$$A = \frac{1}{2}bh$$



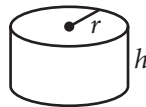
$$c^2 = a^2 + b^2$$



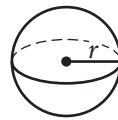
Special Right Triangles



$$V = \ell wh$$



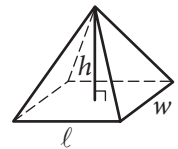
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

The number of degrees of arc in a circle is 360.

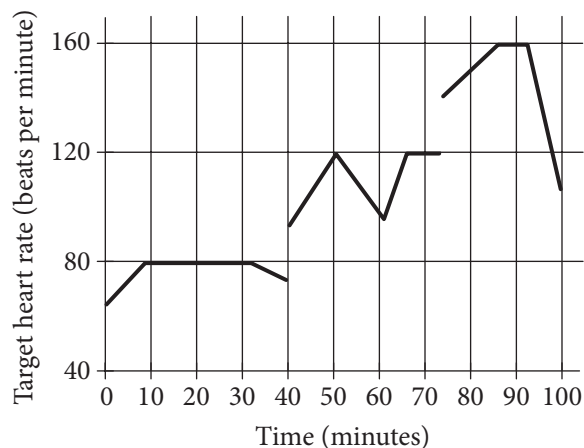
The number of radians of arc in a circle is  $2\pi$ .

The sum of the measures in degrees of the angles of a triangle is 180.



1

John runs at different speeds as part of his training program. The graph shows his target heart rate at different times during his workout. On which interval is the target heart rate strictly increasing then strictly decreasing?



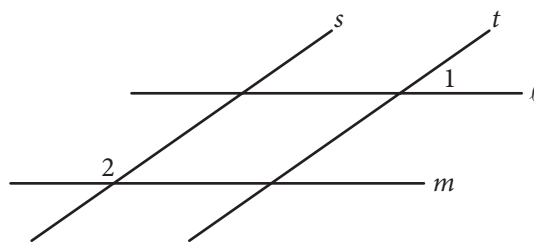
- A) Between 0 and 30 minutes
- B) Between 40 and 60 minutes
- C) Between 50 and 65 minutes
- D) Between 70 and 90 minutes

2

If  $y = kx$ , where  $k$  is a constant, and  $y = 24$  when  $x = 6$ , what is the value of  $y$  when  $x = 5$ ?

- A) 6
- B) 15
- C) 20
- D) 23

3



In the figure above, lines  $l$  and  $m$  are parallel and lines  $s$  and  $t$  are parallel. If the measure of  $\angle 1$  is  $35^\circ$ , what is the measure of  $\angle 2$ ?

- A)  $35^\circ$
- B)  $55^\circ$
- C)  $70^\circ$
- D)  $145^\circ$

4

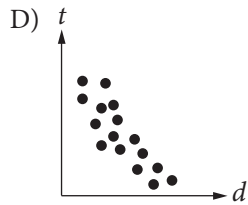
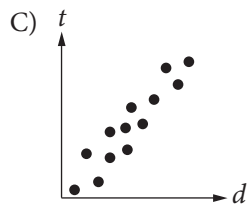
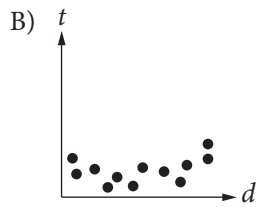
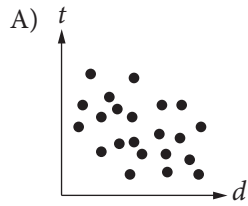
If  $16 + 4x$  is 10 more than 14, what is the value of  $8x$ ?

- A) 2
- B) 6
- C) 16
- D) 80



5

Which of the following graphs best shows a strong negative association between  $d$  and  $t$ ?



6

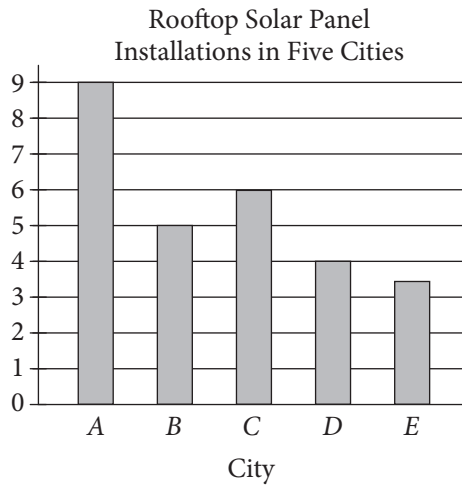
$1 \text{ decagram} = 10 \text{ grams}$ $1,000 \text{ milligrams} = 1 \text{ gram}$
-------------------------------------------------------------------------------------

A hospital stores one type of medicine in 2-decagram containers. Based on the information given in the box above, how many 1-milligram doses are there in one 2-decagram container?

- A) 0.002
- B) 200
- C) 2,000
- D) 20,000



7



The number of rooftops with solar panel installations in 5 cities is shown in the graph above. If the total number of installations is 27,500, what is an appropriate label for the vertical axis of the graph?

- A) Number of installations (in tens)
- B) Number of installations (in hundreds)
- C) Number of installations (in thousands)
- D) Number of installations (in tens of thousands)

8

For what value of  $n$  is  $|n - 1| + 1$  equal to 0?

- A) 0
- B) 1
- C) 2
- D) There is no such value of  $n$ .




**DIRECTIONS**

For questions 31–38, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers** such as  $3\frac{1}{2}$  must be gridded as 3.5 or  $7/2$ . (If  $\begin{array}{|c|c|c|c|} \hline 3 & 1 & / & 2 \\ \hline \bullet & \bullet & / & \bullet \\ \hline \end{array}$  is entered into the grid, it will be interpreted as  $\frac{31}{2}$ , not  $3\frac{1}{2}$ .)
- Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Write answer in boxes. →

← Fraction line

← Decimal point

Grid in result.

Answer: $\frac{7}{12}$			
7	/	1	2
.	.	.	.
0	0	0	0
①	①	●	①
②	②	②	●
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
●	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

Answer: 2.5			
2	.	5	
.	.	.	.
0	0	0	0
①	①	①	①
②	●	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	●
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

Acceptable ways to grid  $\frac{2}{3}$  are:

2	/	3	
.	.	.	.
0	0	0	0
①	①	①	①
②	●	②	②
③	③	③	●
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧

.	6	6	6
.	.	.	.
0	0	0	0
①	①	①	①
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	●	●	●
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧

.	6	6	7
.	.	.	.
0	0	0	0
①	①	①	①
②	②	②	②
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	●	●	⑥
⑦	⑦	⑦	●
⑧	⑧	⑧	⑧

Answer: 201 – either position is correct

2	0	1	
.	.	.	.
0	0	0	0
①	①	①	●
②	●	②	②
③	③	③	③

2	0	1	
.	.	.	.
0	●	0	0
①	①	●	①
②	●	②	②
③	③	③	③

**NOTE:** You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.



31

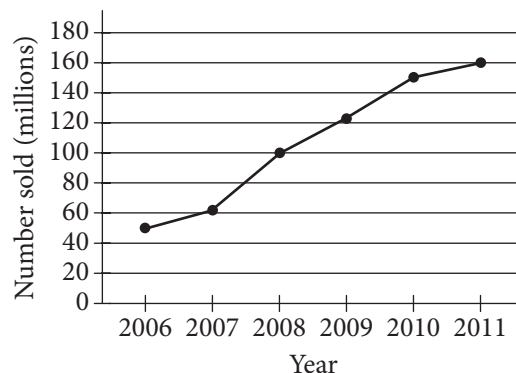
Wyatt can husk at least 12 dozen ears of corn per hour and at most 18 dozen ears of corn per hour. Based on this information, what is a possible amount of time, in hours, that it could take Wyatt to husk 72 dozen ears of corn?

32

The posted weight limit for a covered wooden bridge in Pennsylvania is 6000 pounds. A delivery truck that is carrying  $x$  identical boxes each weighing 14 pounds will pass over the bridge. If the combined weight of the empty delivery truck and its driver is 4500 pounds, what is the maximum possible value for  $x$  that will keep the combined weight of the truck, driver, and boxes below the bridge's posted weight limit?

33

Number of Portable Media Players Sold Worldwide Each Year from 2006 to 2011



According to the line graph above, the number of portable media players sold in 2008 is what fraction of the number sold in 2011?

34

A local television station sells time slots for programs in 30-minute intervals. If the station operates 24 hours per day, every day of the week, what is the total number of 30-minute time slots the station can sell for Tuesday and Wednesday?

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## QUESTION 20

**The correct answer is 100.** Since  $a = 5\sqrt{2}$ , one can substitute  $5\sqrt{2}$  for  $a$  in  $2a = \sqrt{2x}$ , giving  $10\sqrt{2} = \sqrt{2x}$ . Squaring each side of  $10\sqrt{2} = \sqrt{2x}$  gives  $(10\sqrt{2})^2 = (\sqrt{2x})^2$ , which simplifies to  $(10)^2(\sqrt{2})^2 = (\sqrt{2x})^2$ , or  $200 = 2x$ . This gives  $x = 100$ . To verify, substitute 100 for  $x$  and  $5\sqrt{2}$  for  $a$  in the equation  $2a = \sqrt{2x}$ , which yields  $2(5\sqrt{2}) = \sqrt{2(100)}$ ; this is true since  $2(5\sqrt{2}) = 10\sqrt{2}$  and  $\sqrt{2(100)} = \sqrt{2}\sqrt{100} = 10\sqrt{2}$ .

## Section 4: Math Test – Calculator

### QUESTION 1

**Choice B is correct.** On the graph, a line segment with a positive slope represents an interval over which the target heart rate is strictly increasing as time passes. A horizontal line segment represents an interval over which there is no change in the target heart rate as time passes, and a line segment with a negative slope represents an interval over which the target heart rate is strictly decreasing as time passes. Over the interval between 40 and 60 minutes, the graph consists of a line segment with a positive slope followed by a line segment with a negative slope, with no horizontal line segment in between, indicating that the target heart rate is strictly increasing then strictly decreasing.

Choice A is incorrect because the graph over the interval between 0 and 30 minutes contains a horizontal line segment, indicating a period in which there was no change in the target heart rate. Choice C is incorrect because the graph over the interval between 50 and 65 minutes consists of a line segment with a negative slope followed by a line segment with a positive slope, indicating that the target heart rate is strictly decreasing then strictly increasing. Choice D is incorrect because the graph over the interval between 70 and 90 minutes contains horizontal line segments and no segment with a negative slope.

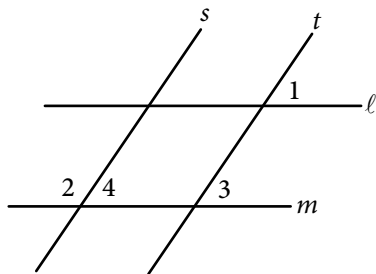
### QUESTION 2

**Choice C is correct.** Substituting 6 for  $x$  and 24 for  $y$  in  $y = kx$  gives  $24 = (k)(6)$ , which gives  $k = 4$ . Hence,  $y = 4x$ . Therefore, when  $x = 5$ , the value of  $y$  is  $(4)(5) = 20$ . None of the other choices for  $y$  is correct because  $y$  is a function of  $x$ , and so there is only one  $y$ -value for a given  $x$ -value.

Choices A, B, and D are incorrect. Choice A is the result of substituting 6 for  $y$  and substituting 5 for  $x$  in the equation  $y = kx$ , when solving for  $k$ . Choice B results from substituting 3 for  $k$  and 5 for  $x$  in the equation  $y = kx$ , when solving for  $y$ . Choice D results from using  $y = k + x$  instead of  $y = kx$ .

### QUESTION 3

**Choice D is correct.** Consider the measures of  $\angle 3$  and  $\angle 4$  in the figure below.



The measure of  $\angle 3$  is equal to the measure of  $\angle 1$  because they are corresponding angles for the parallel lines  $l$  and  $m$  intersected by the transversal line  $t$ . Similarly, the measure of  $\angle 3$  is equal to the measure of  $\angle 4$  because they are corresponding angles for the parallel lines  $s$  and  $t$  intersected by the transversal line  $m$ . Since the measure of  $\angle 1$  is  $35^\circ$ , the measures of  $\angle 3$  and  $\angle 4$  are also  $35^\circ$ . Since  $\angle 4$  and  $\angle 2$  are supplementary angles, the sum of the measures of these two angles is  $180^\circ$ . Therefore, the measure of  $\angle 2$  is  $180^\circ - 35^\circ = 145^\circ$ .

Choice A is incorrect because  $35^\circ$  is the measure of  $\angle 1$ , and  $\angle 1$  is not congruent to  $\angle 2$ . Choice B is incorrect because it is the measure of the complementary angle of  $\angle 1$ , and  $\angle 1$  and  $\angle 2$  are not complementary angles. Choice C is incorrect because it is double the measure of  $\angle 1$ , which cannot be inferred from the information given.

### QUESTION 4

**Choice C is correct.** The description “ $16 + 4x$  is 10 more than 14” can be written as the equation  $16 + 4x = 10 + 14$ , which is equivalent to  $16 + 4x = 24$ . Subtracting 16 from each side of  $16 + 4x = 24$  gives  $4x = 8$ . Since  $8x$  is 2 times  $4x$ , multiplying both sides of  $4x = 8$  by 2 gives  $8x = 16$ . Therefore, the value of  $8x$  is 16.

Choice A is incorrect because it is the value of  $x$ , not  $8x$ . Choices B and D are incorrect and may be the result of errors made when solving the equation  $16 + 4x = 10 + 14$  for  $x$ . For example, choice D could be the result of subtracting 16 from the left side of the equation and adding 16 to the right side of the equation  $16 + 4x = 10 + 14$ , giving  $4x = 40$  and  $8x = 80$ .

### QUESTION 5

**Choice D is correct.** A graph with a strong negative association between  $d$  and  $t$  would have the points on the graph closely aligned with a line that has a negative slope. The more closely the points on a graph are aligned with a line, the stronger the association between  $d$  and  $t$ , and a negative slope indicates a negative association. Of the four graphs, the points on graph D are most closely aligned with a line with a negative slope. Therefore, the graph in choice D has the strongest negative association between  $d$  and  $t$ .

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Choice A is incorrect because the points are more scattered than the points in choice D, indicating a weaker negative association between  $d$  and  $t$ . Choice B is incorrect because the points are aligned to either a curve or possibly a line with a small positive slope. Choice C is incorrect because the points are aligned to a line with a positive slope, indicating a positive association between  $d$  and  $t$ .

## QUESTION 6

**Choice D is correct.** Since there are 10 grams in 1 decagram, there are  $2 \times 10 = 20$  grams in 2 decagrams. Since there are 1,000 milligrams in 1 gram, there are  $20 \times 1,000 = 20,000$  milligrams in 20 grams. Therefore, 20,000 1-milligram doses of the medicine can be stored in a 2-decagram container.

Choice A is incorrect; 0.002 is the number of grams in 2 milligrams. Choice B is incorrect; it could result from multiplying by 1,000 and dividing by 10 instead of multiplying by both 1,000 and 10 when converting from decagrams to milligrams. Choice C is incorrect; 2,000 is the number of milligrams in 2 grams, not the number of milligrams in 2 decagrams.

## QUESTION 7

**Choice C is correct.** Let  $x$  represent the number of installations that each unit on the  $y$ -axis represents. Then  $9x$ ,  $5x$ ,  $6x$ ,  $4x$ , and  $3.5x$  are the number of rooftops with solar panel installations in cities A, B, C, D, and E, respectively. Since the total number of rooftops is 27,500, it follows that  $9x + 5x + 6x + 4x + 3.5x = 27,500$ , which simplifies to  $27.5x = 27,500$ . Thus,  $x = 1,000$ . Therefore, an appropriate label for the  $y$ -axis is "Number of installations (in thousands)."

Choices A, B, and D are incorrect and may result from errors when setting up and calculating the units for the  $y$ -axis.

## QUESTION 8

**Choice D is correct.** If the value of  $|n - 1| + 1$  is equal to 0, then  $|n - 1| + 1 = 0$ . Subtracting 1 from both sides of this equation gives  $|n - 1| = -1$ . The expression  $|n - 1|$  on the left side of the equation is the absolute value of  $n - 1$ , and the absolute value of a quantity can never be negative. Thus  $|n - 1| = -1$  has no solution. Therefore, there are no values for  $n$  for which the value of  $|n - 1| + 1$  is equal to 0.

Choice A is incorrect because  $|0 - 1| + 1 = 1 + 1 = 2$ , not 0. Choice B is incorrect because  $|1 - 1| + 1 = 0 + 1 = 1$ , not 0. Choice C is incorrect because  $|2 - 1| + 1 = 1 + 1 = 2$ , not 0.

## QUESTION 9

**Choice A is correct.** Subtracting 1,052 from both sides of the equation  $a = 1,052 + 1.08t$  gives  $a - 1,052 = 1.08t$ . Then dividing both sides of  $a - 1,052 = 1.08t$  by 1.08 gives  $t = \frac{a - 1,052}{1.08}$ .

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Since the coefficient of  $x$  is  $-2$ , this equation can be written in terms of  $(x - 1)^2 = x^2 - 2x + 1$  as follows:  $y = x^2 - 2x - 15 = (x^2 - 2x + 1) - 16 = (x - 1)^2 - 16$ . From this form of the equation, the coefficients of the vertex can be read as  $(1, -16)$ .

Choices A and C are incorrect because the coordinates of the vertex A do not appear as constants in these equations. Choice B is incorrect because it is not equivalent to the given equation.

### QUESTION 31

**The correct answer is any number between 4 and 6, inclusive.** Since Wyatt can husk at least 12 dozen ears of corn per hour, it will take him no more than  $\frac{72}{12} = 6$  hours to husk 72 dozen ears of corn. On the other hand, since Wyatt can husk at most 18 dozen ears of corn per hour, it will take him at least  $\frac{72}{18} = 4$  hours to husk 72 dozen ears of corn.

Therefore, the possible times it could take Wyatt to husk 72 dozen ears of corn are 4 hours to 6 hours, inclusive. Any number between 4 and 6, inclusive, can be gridded as the correct answer.

### QUESTION 32

**The correct answer is 107.** Since the weight of the empty truck and its driver is 4500 pounds and each box weighs 14 pounds, the weight, in pounds, of the delivery truck, its driver, and  $x$  boxes is  $4500 + 14x$ . This weight is below the bridge's posted weight limit of 6000 pounds if  $4500 + 14x < 6000$ . Subtracting 4500 from both sides of this inequality and then dividing both sides by 14 yields  $x < \frac{1500}{14}$  or  $x < 107\frac{1}{7}$ . Since the number of packages must be an integer, the maximum possible value for  $x$  that will keep the combined weight of the truck, its driver, and the  $x$  identical boxes below the bridge's posted weight limit is 107.

### QUESTION 33

**The correct answer is  $\frac{5}{8}$  or .625.** Based on the line graph, the number of portable media players sold in 2008 was 100 million, and the number of portable media players sold in 2011 was 160 million. Therefore, the number of portable media players sold in 2008 is  $\frac{100 \text{ million}}{160 \text{ million}}$  of the portable media players sold in 2011. This fraction reduces to  $\frac{5}{8}$ .

Either  $\frac{5}{8}$  or its decimal equivalent, .625, may be gridded as the correct answer.

**QUESTION 34**

**The correct answer is 96.** Since each day has a total of 24 hours of time slots available for the station to sell, there is a total of 48 hours of time slots available to sell on Tuesday and Wednesday. Each time slot is a 30-minute interval, which is equal to a  $\frac{1}{2}$ -hour interval. Therefore,

there are  $\frac{48 \text{ hours}}{\frac{1}{2} \text{ hours/time slot}} = 96$  time slots of 30 minutes for the station

to sell on Tuesday and Wednesday.

**QUESTION 35**

**The correct answer is 6.** The volume of a cylinder is  $\pi r^2 h$ , where  $r$  is the radius of the base of the cylinder and  $h$  is the height of the cylinder. Since the storage silo is a cylinder with volume  $72\pi$  cubic yards and height 8 yards, it follows that  $72\pi = \pi r^2(8)$ , where  $r$  is the radius of the base of the cylinder, in yards. Dividing both sides of the equation  $72\pi = \pi r^2(8)$  by  $8\pi$  gives  $r^2 = 9$ , and so the radius of the base of the cylinder is 3 yards. Therefore, the diameter of the base of the cylinder is 6 yards.

**QUESTION 36**

**The correct answer is 3.** The function  $h(x)$  is undefined when the denominator of  $\frac{1}{(x-5)^2 + 4(x-5) + 4}$  is equal to zero. The expression  $(x-5)^2 + 4(x-5) + 4$  is a perfect square:  $(x-5)^2 + 4(x-5) + 4 = ((x-5) + 2)^2$ , which can be rewritten as  $(x-3)^2$ . The expression  $(x-3)^2$  is equal to zero if and only if  $x = 3$ . Therefore, the value of  $x$  for which  $h(x)$  is undefined is 3.

**QUESTION 37**

**The correct answer is 1.02.** The initial deposit earns 2 percent interest compounded annually. Thus at the end of 1 year, the new value of the account is the initial deposit of \$100 plus 2 percent of the initial deposit:  $\$100 + \frac{2}{100}(\$100) = \$100(1.02)$ . Since the interest is compounded annually, the value at the end of each succeeding year is the sum of the previous year's value plus 2 percent of the previous year's value. This is again equivalent to multiplying the previous year's value by 1.02. Thus, after 2 years, the value will be  $\$100(1.02)(1.02) = \$100(1.02)^2$ ; after 3 years, the value will be  $\$100(1.02)^3$ ; and after  $t$  years, the value will be  $\$100(1.02)^t$ . Therefore, in the formula for the value for Jessica's account after  $t$  years,  $\$100(x)^t$ , the value of  $x$  must be 1.02.