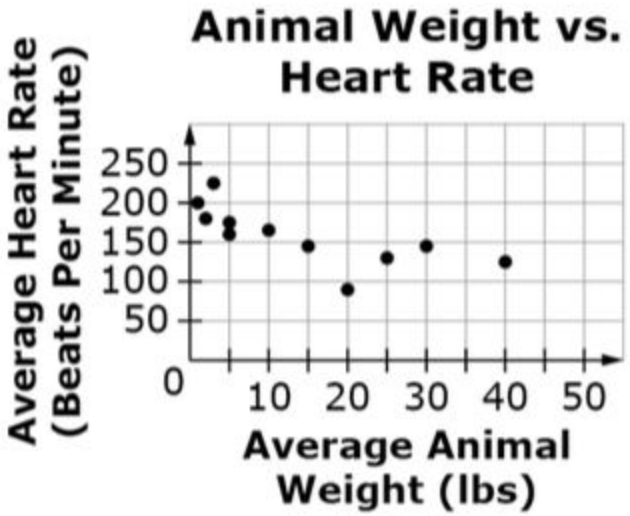
Name _____ Period _____ Date _____

Statistics & Probability: Bivariate Data A

1

Example Stem: This scatter plot shows the relationship between the average weight and average heart rate for 11 different animals.



Select True or False for each statement based on the scatter plot.

Statement	True	False
There is a positive association between average weight and average heart rate for animals.		
Animals with higher body weights tend to have lower heart rates than animals with lower body weights.		
For animals weighing 20 lbs or less, there is a linear association between average weight and average heart rate.		

SBAC MATH 8 Statistics & Probability: Bivariate Data Practice A

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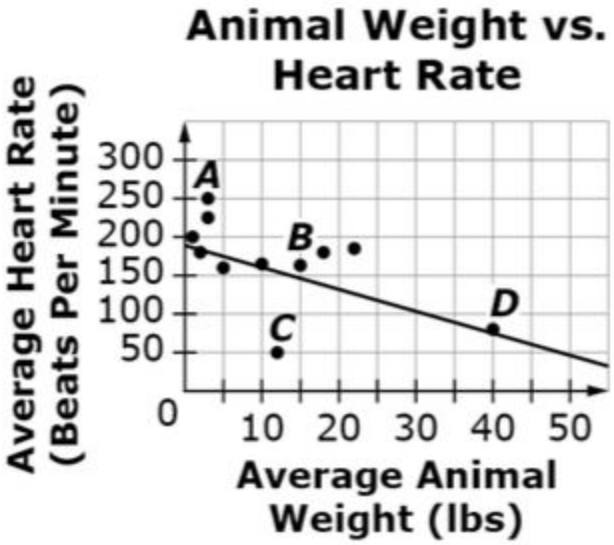
2

Example Stem: This scatter plot shows the relationship between the average weight and average heart rate for 11 different animals. The line of best fit is shown on the graph.



Select True or False for each statement based on the graph.

Statement	True	False
The line of best fit provides a good estimate of an animal's average heart rate based on its weight for all animals.		
The *y*-intercept is at approximately (0, 185).		
Point *D* is one outlier because it is far away from the other data points.		

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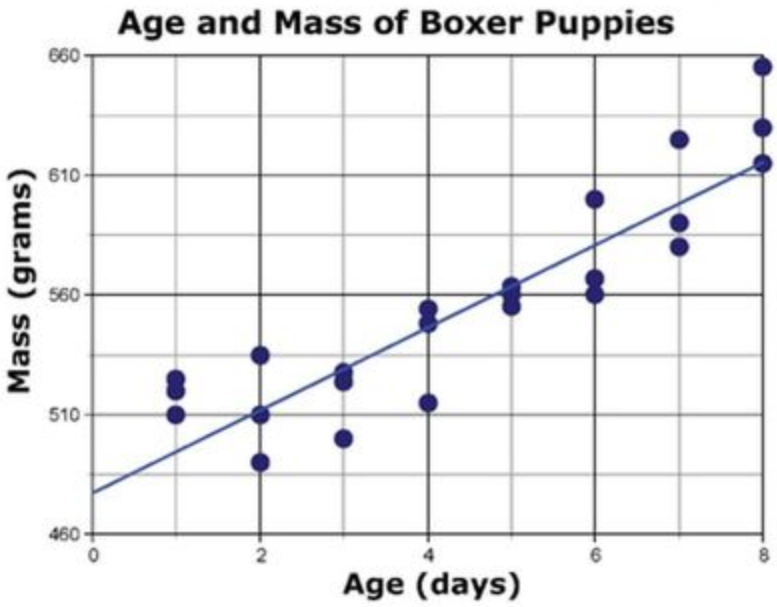
3

Example Stem 1: Every boxer puppy in a litter is weighed each day. The scatter plot shows the age and mass recorded at each weighing.



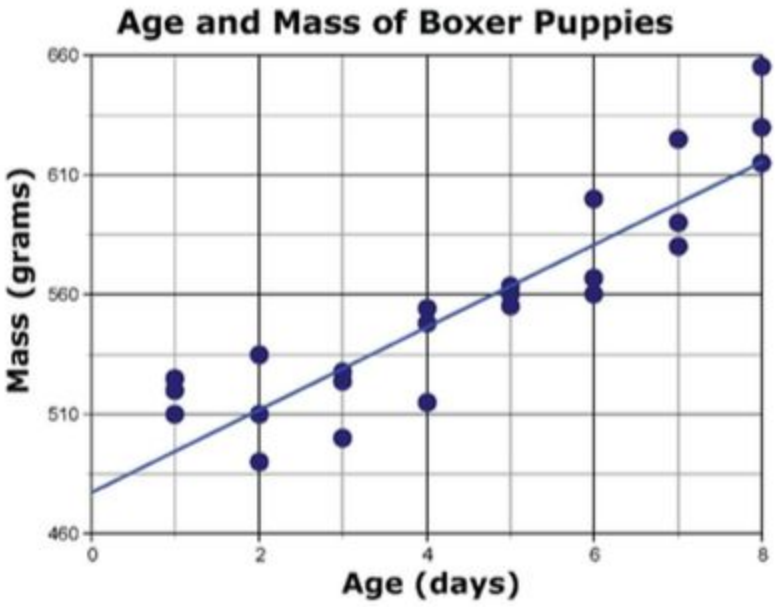
The line of best fit has equation $y = a + bx$, where a and b are constants. What does the y-intercept tell you about the puppies in the litter?

A. The predicted change in mass of a puppy each day.
B. The predicted mass of a puppy at birth.
C. The number of puppies born on day 0.
D. The mass of the entire litter of puppies.

Name _____ Period _____ Date _____

4

Example Stem 2: Each puppy in a litter is weighed each day. The scatter plot shows the age and mass recorded at each weighing.



The line of best fit is shown on the scatter plot. What does the slope of the line tell you about the puppies in the litter?

A. The predicted change in mass of a puppy each day.
B. The predicted mass of a puppy at birth.
C. The number of puppies born on day 0.
D. The mass of the entire litter of puppies.

SBAC MATH & Statistics & Probability: Bivariate Data Practice A

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5

Example Stem 1: All 8th-grade students at a school answered Yes or No to the two survey questions shown.

- Do you have a cell phone? Yes No
- Do you have an MP3 player? Yes No

The results of the survey are shown in the table.

	MP3 Player	No MP3 Player	Total
Cell Phone	58	122	180
No Cell Phone	30	65	95
Total	88	187	275

What percentage of the students have both a cell phone and an MP3 player?

A. 21%
B. 32%
C. 66%
D. 68%

6

Example Stem 2: A company surveyed both adults and children about whether or not they liked a particular game. The survey results are shown in the table.

	Liked the game	Did not like the game	Total
Adults	28	20	48
Children	54	98	152
Total	82	118	200

Which of the following correctly compares the proportion of adults who liked the game with the proportion of children who liked the game?

A. They are approximately the same.
B. The proportion of adults who liked the game is greater than the proportion of children who liked the game.
C. The proportion of adults who liked the game is less than the proportion of children who liked the game.
D. It is not possible to compare these proportions with the information given.

SBAC MATH 8 Statistics & Probability: Bivariate Data Practice A

Name _____ Period _____ Date _____

7

Example Stem: All 8th-grade students at a school answered Yes or No to the two survey questions shown.

- Do you have a cell phone? Yes No
- Do you have an MP3 player? Yes No

The results of the survey are shown in the table.

	MP3 Player	No MP3 Player	Total
Cell Phone	58	122	180
No Cell Phone	30	65	95
Total	88	187	275

Is there an association between owning a cell phone and owning an MP3 Player for the students at this school?

A. Yes, because more than half of the students own a cell phone but less than half own an MP3 player.
B. Yes, because the proportion of students who own an MP3 player is almost the same for students who own a cell phone and for students who do not.
C. No, because more than half of the students own a cell phone but less than half own an MP3 player.
D. No, because the proportion of students who own an MP3 player is almost the same for students who own a cell phone and for students who do not.

SBAC MATH 8 Statistics & Probability: Bivariate Data Practice A

Name _____ Period _____ Date _____

8

Example Stem: A coach of a cross country team asked all 200 of the runners who ran at a meet two questions:

Did you get less than 8 hours of sleep last night? Yes No
Did you achieve a personal record in this meet? Yes No

A summary of the data is shown in the table.

	8 or more hours of sleep	Less than 8 hours of sleep	Total
Personal Record	28	20	48
No Personal Record	54	98	152
Total	82	118	200

The coach saw an association between the amount of sleep and achieving a personal record for the runners. Which statement provides evidence for this association?

A. About 34% of the runners who got more than 8 hours of sleep achieved a personal record, but only 17% of those who got less than 8 hours of sleep did.
B. More than 50% of the runners who achieved a personal record got 8 or more hours of sleep.
C. Only 25% of the runners achieved a personal record at the meet.
D. There is no evidence for an association.

9

CLAIM 3

Example Item 3B.3c (Grade 8)
Primary Target 3B (Content Domain RP), Secondary Target 1A (CCSS 7.RP.A), Tertiary Target 4F

A car is traveling at a constant speed and drove 75 miles in 1.5 hours. One mile is approximately 1.6 kilometers. Approximately how fast is the car traveling in kilometers per hour?

Explain or show clear steps for how you determined your answer.

SBAC MATH 8 Statistics & Probability: Bivariate Data Practice A

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9

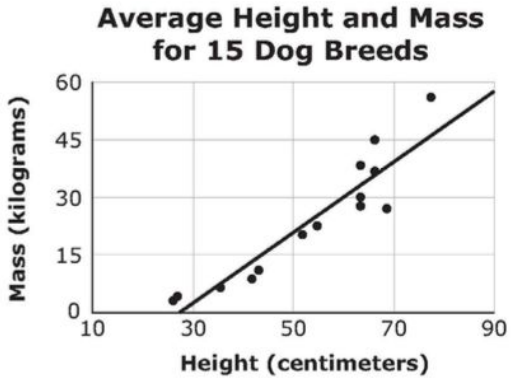
CLAIM 3

Example Item 4D.1b (Grade 8)
Primary Target 4D (Content Domain SP), Secondary Target 1J (CCSS 8.SP.A), Tertiary Target 4E

This scatter plot and line of best fit show the relationship between the height and mass of 15 different dog breeds.

The mass of the Afghan Hound is less than would be predicted by the line of best fit, and the difference between the predicted mass and the actual mass is greater than for any other breed.

Click on the point in the scatterplot that corresponds to the Afghan Hound.

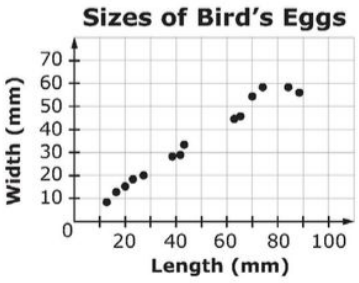


9

CLAIM 3

Example Item 4E.1a (Grade 8)
Primary Target 4E (Content Domain SP), Secondary Target 1J (CCSS 8.SP.A), Tertiary Target 4D, Quaternary 4B

This scatter plot shows the lengths and the widths (in millimetres) of the eggs of some American birds.



Use the information in the scatter plot to support each answer.

Part A
The scatter plot shows an association between the length of a bird egg and its width. Describe that association.

Part B
Fossils show that dinosaur eggs closely resemble the shape of bird eggs. One type of dinosaur (sauropods) grew from eggs that were 180 millimeters in length.

Assume that sauropod eggs were the same shape as bird eggs. What is the approximate width, in millimeters, of sauropod eggs? Explain how you determined your answer.

SBAC MATH 8 Statistics & Probability: Bivariate Data Practice A

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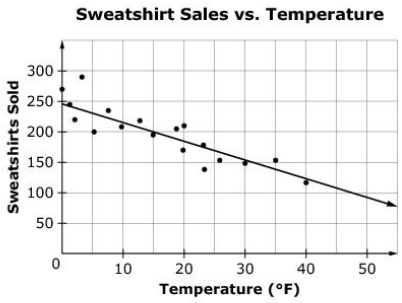
Statistics & Probability: Bivariate Data C

1

21

This scatter plot shows the relationship between the number of sweatshirts sold and the temperature outside.



The *y*-intercept of the estimated line of best fit is at (0, *b*). Enter the approximate value of the *b* in the first response box.

Enter the approximate slope of the estimated line of best fit in the second response box.

y−intercept _____

slope _____

SBAC Math & Statistics & Probability: Bivariate Data Practice C

Name _____ Period _____ Date _____

2

29

Samantha gathered the following information on a given day at the dog park.

- There are 32 dogs playing at the dog park.
- 15 of the dogs are puppies.
- 11 of the dogs are not puppies and have long hair.
- There are 6 more dogs that have long hair than dogs that do not have long hair.

Fill in the table completely to represent Samantha's data.

	Dogs That are Puppies	Dogs That are Not Puppies	Total
Dogs with Long Hair			
Dogs That Do Not Have Long Hair			
Total			

3

33

There are a total of 500 students in grades 1 through 5 in an elementary school.

- 17% of the total number of students are in 1st grade.
- 19% of the total number of students are in 4th grade.
- The number of 3rd-grade students is 9 less than the number of 4th-grade students.
- The number of 2nd-grade students is 10 less than the number of 5th-grade students.

Complete the table to show the number of students in each grade. Enter your answers in the table.

Elementary School Students

Grade	Number of Students
1st	
2nd	
3rd	
4th	
5th	