

Grade 8 data and probability test

NAME	DATE	SCORE / 6
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Answer each question. Show your work.

- 1

A line of fit for plant height y , in cm, against age x , in weeks, is $y = 3x + 2$. The data covers plants from 1 to 8 weeks old. What height, in cm, does the line predict for a plant 7 weeks old?

- 2

In a game, a player rolls a fair number cube. Rolling a 6 scores 3 points, and any other roll scores 0 points. Over many rolls, about how many points does a player score per roll, on average?

- 3

A report says a new soap raises the risk of a skin rash by 100%. Before, 8 of every 100,000 users got a rash. Is this a large change in practical terms?

☐ Yes: now 100% of users get a rash

☐ Yes: a 100% rise is always large

☐ No: only 8 more of every 100,000 users get a rash

- 4

In one beach town last year, 1 of every 20,000 swimmers was bitten by a shark, and 4 of every 2,000 cyclists were hurt in a bike fall. Many people fear shark bites more than bike falls. Which statement best explains this?

☐ A shark bite happens more often than a bike fall

☐ A rare event always has a higher probability

☐ A shark bite is easy to picture and remember, though it is far less likely

- 5

A survey asked students two questions. Of the students who play an instrument, 66% sing in a choir. Of the students who do not play an instrument, 63% sing in a choir. Is there an association between playing an instrument and singing in a choir?

☐ Yes: most students in both groups sing in a choir

☐ Yes: 66% and 63% are not exactly equal

☐ No: 66% and 63% are about the same

- 6

Two classes took the same quiz. Class A has a mean of 60 points and Class B has a mean of 62 points. Each class has a mean absolute deviation of 2 points. Is the difference between the two classes convincing?

☐ No: the gap between the means is small compared with the spread

☐ Yes: any gap between two means shows a real difference

☐ Yes: the gap between the means is large compared with the spread

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Answer each question. Show your work.

7

The two-way table shows the results of a survey of students: whether each student has a pet, and how each one gets to school. What percent of the students who walk to school do not have a pet?

Pet	Walk	Bus	Car	Total
Has a pet	11	24	4	39
No pet	14	14	29	57
Total	25	38	33	96

8

The two-way table shows the results of a survey of students: whether each student has a pet, and how each one gets to school. How many of the students who do not have a pet walk to school?

Pet	Walk	Bus	Car	Total
Has a pet	6	17	30	53
No pet	11	6	24	41
Total	17	23	54	94

9

A juice company asked 200 visitors to its own website which juice they like best. A bar graph on the site shows that 70% chose its juice. The headline says, “Most people like our juice best.” What measure does the report use?

☐ The visitors to the company's website who answered

☐ The percent who chose the company's juice

☐ A bar graph ☐ Everyone who drinks juice

10

The scatter plot below shows some data. Each point is a child: hours of practice (across) and goals scored (up). Draw a straight line that fits the data.

Hours of Practice (x)	Goals Scored (y)
1	2.2
1.5	1.8
2	3.2
2.5	3.8
3	4.5
4	2.8
4.5	4.2
5	3.9
6.5	6.2
7	5.5
7.5	5.0
8	5.8
8.5	5.4

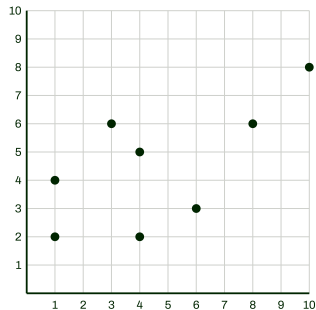
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NAME	DATE	SCORE
		/ 2

Answer each question. Show your work.

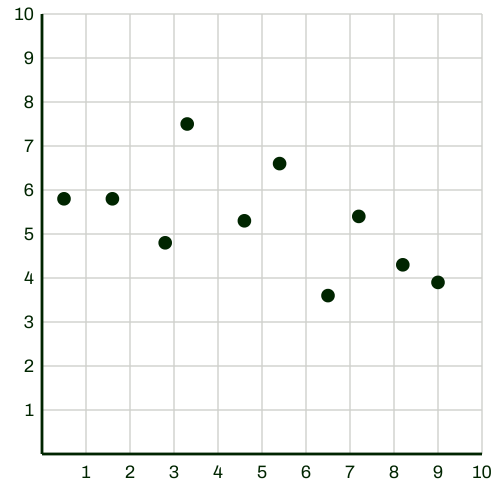
- 11

Each point is a student: hours of study (across) and quiz score (up). How many hours of study does the highest point show?



- 12

Each point is a plant: cups of water (across) and height in cm (up). Is the association in the scatter plot strong or weak?



☐ Strong
 ☐ Weak

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- 1

23
- 2

0.5
- 3

No: only 8 more of every 100,000 users get a rash
- 4

A shark bite is easy to picture and remember, though it is far less likely
- 5

No: 66% and 63% are about the same
- 6

No: the gap between the means is small compared with the spread
- 7

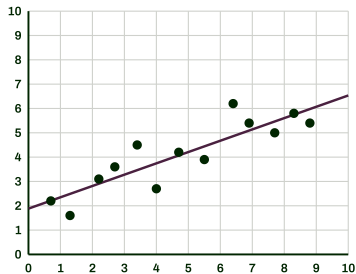
56%
- 8

11
- 9

The percent who chose the company's juice
- 10
- 11

10
- 12

Weak



One straight line through the middle of the cloud, with about as many points above it as below (no more than 2 more on one side). It rises about 0.5 for each 1 across (anything from 0.3 to 0.6 counts) and meets the up axis near 1.9. A line joining the first and last points, or a zigzag through the points, does not count.