Mathematics

Delprov B

1b

Elevens namn och klass/grupp

Provet kommer inte att återanvändas enligt beslut från
Skolverket Dnr:6.2.1-2023:233.

Skolverket

Instructions – part B

Time for the test

60 minutes for part B.

Aids

The allowed aids on part B are a formula sheet and a ruler.

Tasks

For the tasks in this part, you only need to state your answers.
Write your answers in the test booklet.

The maximum number of points you can be given for your answer is shown after each task.

Grading limits

The test (parts B–D) gives a total maximum of 67 points.

Limit for test grade

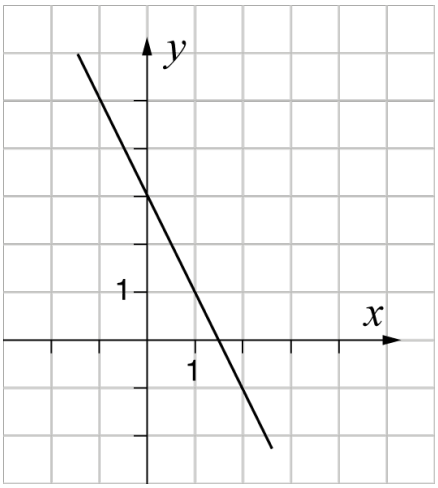
E: At least 14 points.
D: At least 25 points, of which at least 9 points on level C or higher.
C: At least 33 points, of which at least 14 points on level C or higher.
B: At least 43 points, of which at least 6 points at level A.
A: At least 51 points, of which at least 10 points at level A.

Illustrations: Jens Ahlbom

1. Factor the expression $5x + 25$
by factoring out the largest possible factor.

Answer: _____ (1/0/0)

2. What function corresponds to the graph in the coordinate system?
Circle your answer.



$y = -2x + 1.5$

$y = -2x + 3$

$y = -0.5x + 3$

$y = 2x - 1.5$

$y = 1.5x + 3$

(1/0/0)

3. It costs SEK 420 000 to purchase a particular car.
The value of the car will decrease by 15% per year.
Write a function y which describes the value of the car in SEK, x years after the purchase.

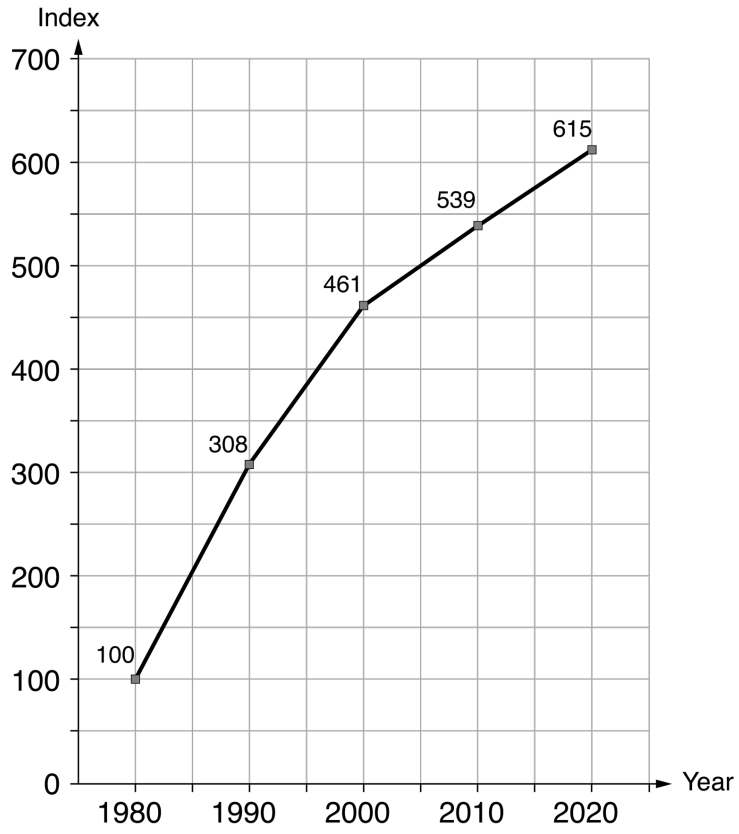
Answer: _____ (1/0/0)

4. Lena has a bag with 2 yellow and 3 blue mittens. She takes 2 mittens out of the bag without looking at what colour they are. What calculation can be used to determine the probability of her taking out the two yellow mittens?
Circle your answer.

$\frac{2}{5} \times \frac{2}{5}$ $\frac{2}{5} \times \frac{1}{5}$ $\frac{2}{5} \times \frac{2}{4}$ $\frac{2}{5} \times \frac{1}{4}$ $\frac{3}{5} \times \frac{2}{4}$

(1/0/0)

5. The diagram shows the index development for the price of Päronis ice cream between the years 1980 and 2020.



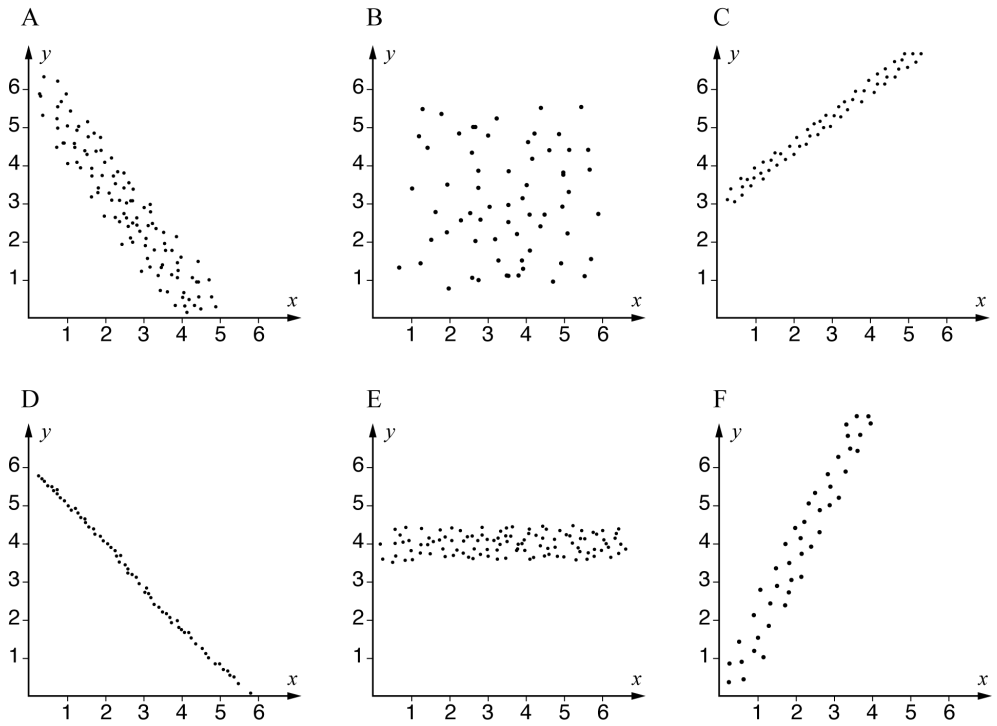
By what percentage has the price for Päronis increased between the years 1980 and 2020?

Answer: _____ % (1/0/0)

6. Simplify the expression $\frac{3a^7}{12a^5}$ as far as possible.

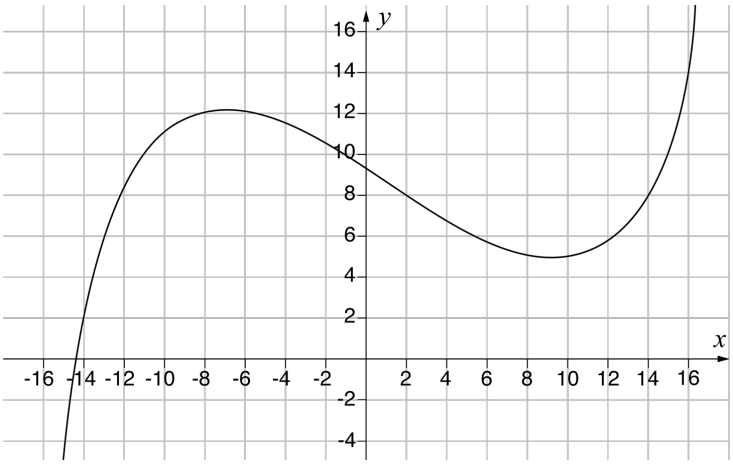
Answer: _____ (1/0/0)

7. The diagrams show six different correlations between the variables x and y.
Which of the diagrams A–F shows the strongest correlation?



Answer: _____ (1/0/0)

8. Below is the graph of the function $y = f(x)$



a) Determine $f(2)$ Answer: $f(2) =$ _____ (1/0/0)

b) Solve the equation $f(x) = 14$ Answer: $x =$ _____ (0/1/0)

9. Solve the inequality $-4x - 10 < 90$ Answer: _____ (0/1/0)

10. Four different situations are presented below. State your answer by placing a cross for each situation if it can be described by a linear, exponential or logarithmic model.

	Linear model	Exponential model	Logarithmic model
The total weight of a flatbed truck increases depending upon the amount of sand loaded on the flatbed.	☐	☐	☐
The braking distance for a car, depends upon the speed of the car squared.	☐	☐	☐
The volume of a piece of dough increases depending upon the time, as the volume of the dough increases by 5% every ten minutes.	☐	☐	☐
The volume of water in a bucket decreases depending upon the time, as the water runs out at 2 cl per minute.	☐	☐	☐

(0/2/0)

11. Write an expression in the empty parenthesis so that the equality applies.

$3(4x - 10) = 2(\quad\quad)$ (0/1/0)

12. On a die, each face is a different colour. One face is red.

The probability of getting red three times in a row when you roll the die is $\frac{1}{64}$

How many faces does the die have? Answer: _____ (0/1/0)

13. Write $2a + b$ in terms of a if

$a + b = 2$

Simplify as far as possible. Answer: _____ (0/0/1)

14. $f(x) = 2x - 4$ and $g(x) = 3x + 1$

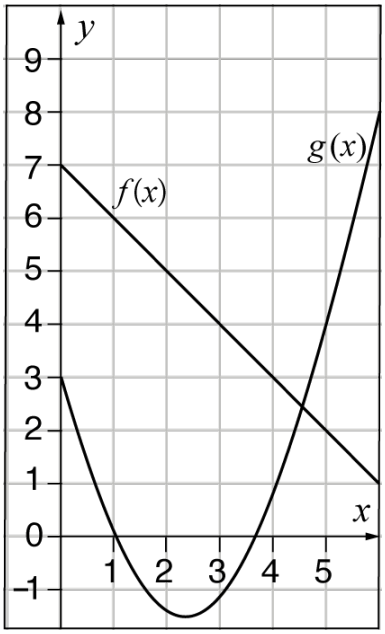
Determine $f(g(2))$ Answer: $f(g(2)) =$ _____ (0/0/1)

15. The expressions below have the same positive value of a.
What numbers should be in the boxes for the equalities to apply?

$a^{\frac{1}{3}} = \square$ $a^{\frac{2}{3}} = 9$ $a = \square$

(0/0/1)

16. Shadow the area in the coordinate system where $f(x) \leq y \leq g(x)$



(0/0/1)

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PRIM gruppen