Math Kangaroo 2021 Sample Questions

LEVELS 1 AND 2

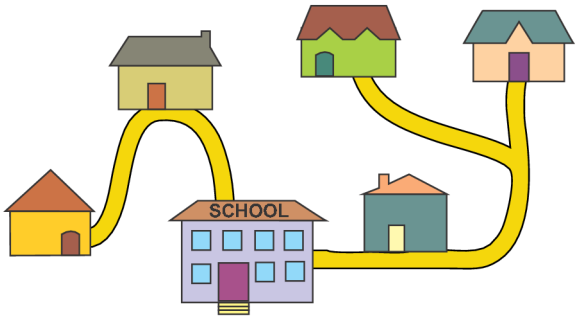
SAMPLE QUESTION FOR 3 POINTS

6. The pink tower is taller than the red tower but shorter than the green tower. The silver tower is taller than the green tower. Which tower is the tallest?

(A) pink tower (B) green tower (C) red tower (D) silver tower
(E) We don't know.

SAMPLE QUESTION FOR 4 POINTS

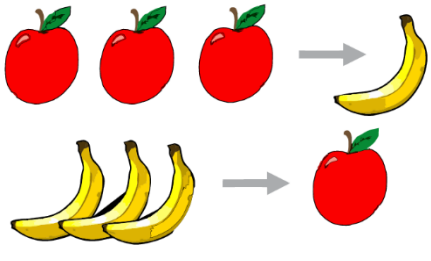
15. The picture shows the five houses of five friends and their school. The school is the largest building in the picture. To go to school, Doris and Ali walk past Leo's house. Eva walks past Chole's house. Which is Eva's house?

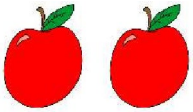


(A)  (B)  (C)  (D)  (E) 

SAMPLE QUESTION FOR 5 POINTS

18. Every time the witch has 3 apples, she turns them into 1 banana. Every time she has 3 bananas, she turns them into 1 apple. What will she end up with if she starts with 4 apples and 5 bananas?



(A)  (B)  (C)  (D)  (E) 

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Math Kangaroo 2021 Sample Questions

LEVELS 1 AND 2 ANSWERS

SAMPLE QUESTION FOR 3 POINTS

6. The pink tower is taller than the red tower but shorter than the green tower. The silver tower is taller than the green tower. Which tower is the tallest?

(A) pink tower (B) green tower (C) red tower **(D)** silver tower
(E) We don't know.

SAMPLE QUESTION FOR 4 POINTS

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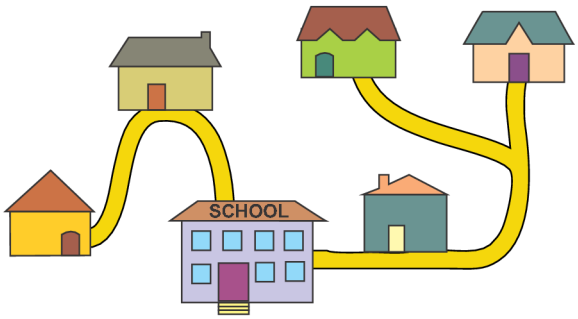
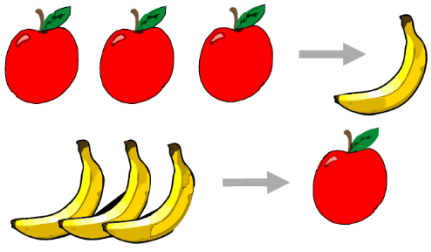
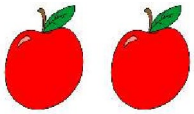


(A)  **(B)**  (C)  (D)  (E) 

SAMPLE QUESTION FOR 5 POINTS

18. Every time the witch has 3 apples, she turns them into 1 banana. Every time she has 3 bananas, she turns them into 1 apple. What will she end up with if she starts with 4 apples and 5 bananas?



(A)  (B)  (C)  (D)  (E) 

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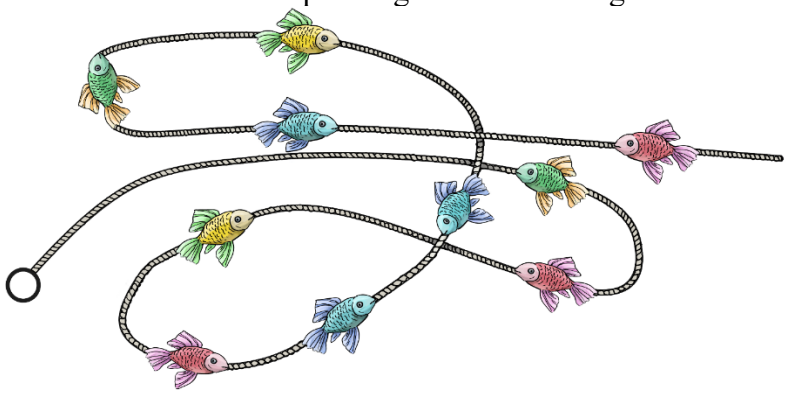
Math Kangaroo 2021 Sample Questions

LEVELS 3 AND 4

SAMPLE QUESTION FOR 3 POINTS

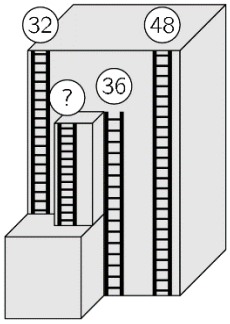
2. How many fish will have their heads pointing towards the ring when we straighten the line?



(A) 3 (B) 5 (C) 6 (D) 7 (E) 8

SAMPLE QUESTION FOR 4 POINTS

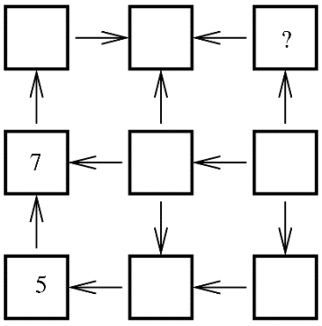
15. On a tall building there are 4 fire escape ladders, as shown. The heights of 3 ladders are at their tops. What is the height of the shortest ladder?



(A) 12 (B) 14 (C) 16 (D) 20 (E) 22

SAMPLE QUESTION FOR 5 POINTS

23. Elena wants to write the numbers from 1 to 9 in the squares shown. The arrows always point from a smaller number to a larger one. She has already written 5 and 7. Which number should she write instead of the question mark?



(A) 2 (B) 3 (C) 4 (D) 6 (E) 8

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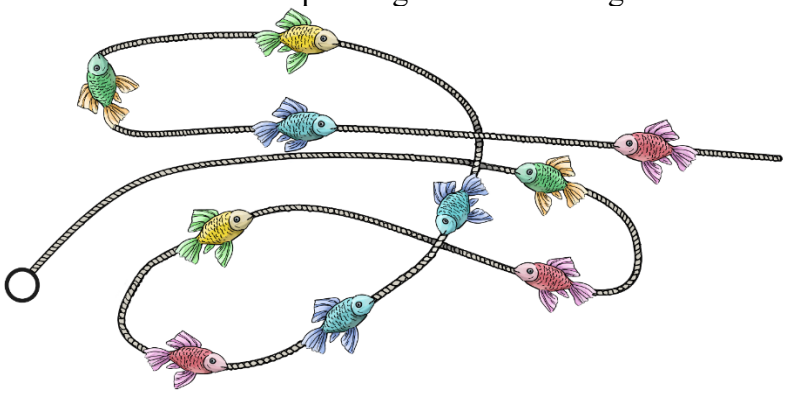
Math Kangaroo 2021 Sample Questions

LEVELS 3 AND 4 ANSWERS

SAMPLE QUESTION FOR 3 POINTS

2. How many fish will have their heads pointing towards the ring when we straighten the line?



(A) 3 (B) 5 **(C)** 6 (D) 7 (E) 8

SAMPLE QUESTION FOR 4 POINTS

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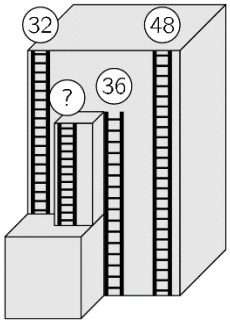

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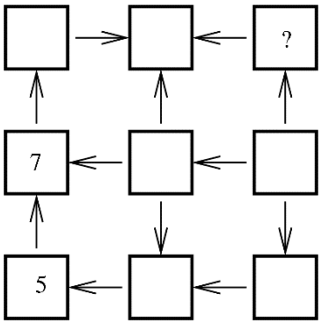

(A) 2 (B) 3 (C) 4 **(D)** 6 (E) 8

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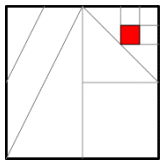
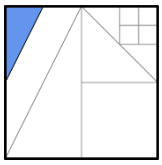
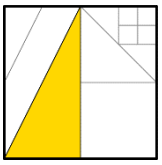
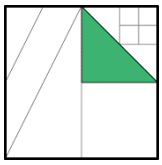
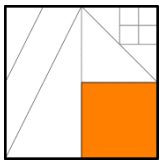
Math Kangaroo 2021 Sample Questions

LEVELS 5 AND 6

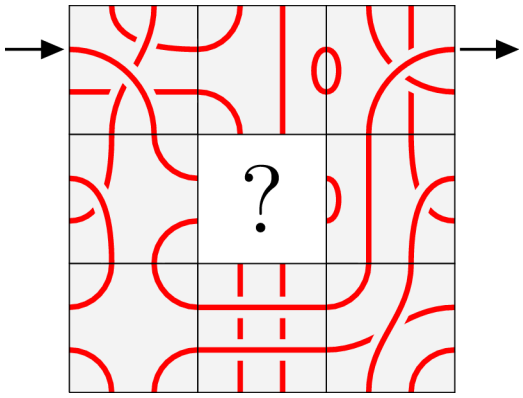
SAMPLE QUESTION FOR 3 POINTS

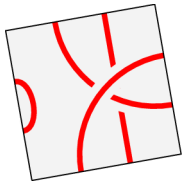
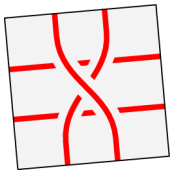
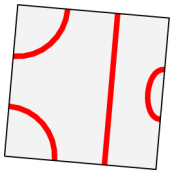
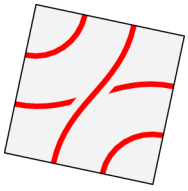
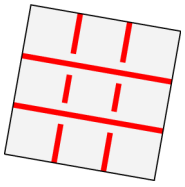
10. There is a square with line segments drawn inside it. The line segments are drawn either from the vertices or the midpoints of other line segments. We colored $\frac{1}{8}$ of the large square. Which one is our coloring?

(A)  (B)  (C)  (D)  (E) 

SAMPLE QUESTION FOR 4 POINTS

13. Rosa wants to start at the arrow, follow the line, and get out at the other arrow. Which piece, if placed in the middle, cannot produce this? Note: The piece can be rotated.



(A)  (B)  (C)  (D)  (E) 

SAMPLE QUESTION FOR 5 POINTS

29. 10 elves and trolls each were given a token with a different number from 1 to 10 written on it. They were each asked what number was on their token and all answered with a number from 1 to 10. The sum of the answers was 36. Each troll told a lie and each elf told the truth. What is the smallest number of trolls there could be in the group?

(A) 1 (B) 3 (C) 4 (D) 5 (E) 7

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Math Kangaroo 2021 Sample Questions

LEVELS 5 AND 6 ANSWERS

SAMPLE QUESTION FOR 3 POINTS

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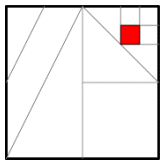
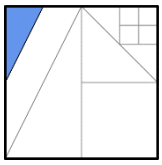
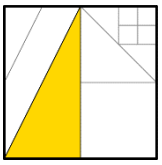
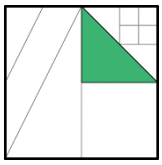
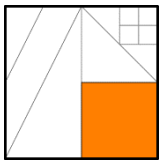
(A)  (B)  (C)  **(D)**  (E) 

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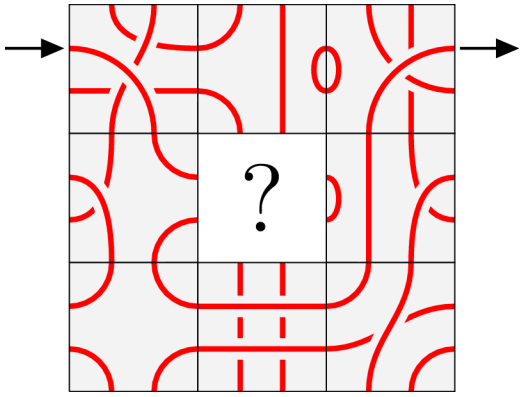
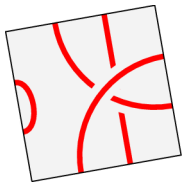
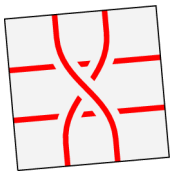
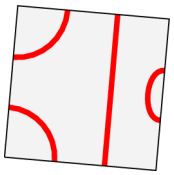
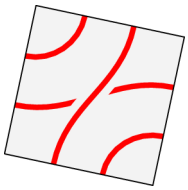
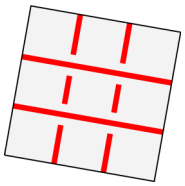


(A)  (B)  (C)  **(D)**  (E) 

SAMPLE QUESTION FOR 5 POINTS

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(A) 1 **(B)** 3 (C) 4 (D) 5 (E) 7

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Math Kangaroo 2021 Sample Questions

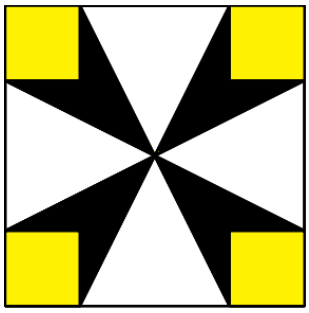
LEVELS 7 AND 8

SAMPLE QUESTION FOR 3 POINTS

5. When the five pieces shown fit together correctly, the result is a rectangle with a calculation written on it. What is the result of this calculation?

(A) –100 (B) –8 (C) –1 (D) 199 (E) 208

SAMPLE QUESTION FOR 4 POINTS



13. The area of the large square is 16 cm^2 and the area of each small square is 1 cm^2. What is the total area of the black flower?

(A) 3 cm^2 (B) $\frac{7}{2}$ cm^2 (C) 4 cm^2 (D) $\frac{11}{2}$ cm^2 (E) 6 cm^2

SAMPLE QUESTION FOR 5 POINTS

26. 2021 colored kangaroos are arranged in a row and are numbered from 1 to 2021. Each kangaroo is colored red, gray, or blue. Among any three consecutive kangaroos, there are always kangaroos of all three colors. Bruce guesses the colors of five kangaroos. These are his guesses: Kangaroo 2 is gray; Kangaroo 20 is blue; Kangaroo 202 is red; Kangaroo 1002 is blue; Kangaroo 2021 is gray. Only one of his guesses is wrong. What is the number of the kangaroo whose color he guessed incorrectly?

(A) 2 (B) 20 (C) 202 (D) 1002 (E) 2021

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Math Kangaroo 2021 Sample Questions

LEVELS 7 AND 8 ANSWERS

SAMPLE QUESTION FOR 3 POINTS

5. When the five pieces shown fit together correctly, the result is a rectangle with a calculation written on it. What is the result of this calculation?

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SAMPLE QUESTION FOR 4 POINTS

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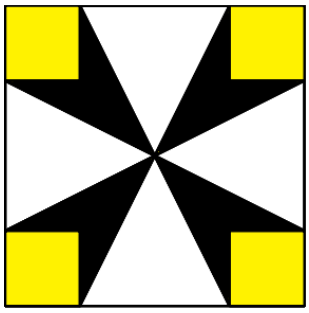

(A) 3 cm^2 (B) $\frac{7}{2}$ cm^2 **(C)** 4 cm^2 (D) $\frac{11}{2}$ cm^2 (E) 6 cm^2

SAMPLE QUESTION FOR 5 POINTS

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(A) 2 **(B)** 20 (C) 202 (D) 1002 (E) 2021

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Math Kangaroo 2021 Sample Questions

LEVELS 9 AND 10

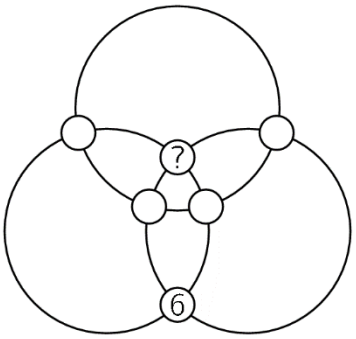
SAMPLE QUESTION FOR 3 POINTS

1. Each year, the third Thursday in March is named Kangaroo Day. The dates of Kangaroo Day for the next few years are shown below, with one error. Which date is wrong?

(A) March 17, 2022 (B) March 16, 2023 (C) March 14, 2024
(D) March 20, 2025 (E) March 19, 2026

SAMPLE QUESTION FOR 4 POINTS

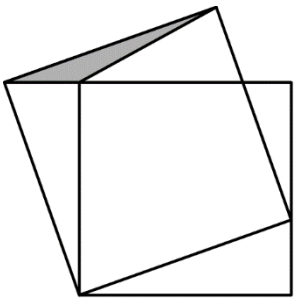
13. The numbers from 1 to 6 are placed in the circles at the intersections of three rings. The position of number 6 is shown. The sums of the numbers on each ring are the same. What number is placed in the circle with the question mark?



(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

SAMPLE QUESTION FOR 5 POINTS

25. The smaller square in the picture has an area of 16 and the gray triangle has an area of 1. What is the area of the larger square?



(A) 17 (B) 18 (C) 19 (D) 20 (E) 21

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Math Kangaroo 2021 Sample Questions

LEVELS 9 AND 10 ANSWERS

SAMPLE QUESTION FOR 3 POINTS

1. Each year, the third Thursday in March is named Kangaroo Day. The dates of Kangaroo Day for the next few years are shown below, with one error. Which date is wrong?

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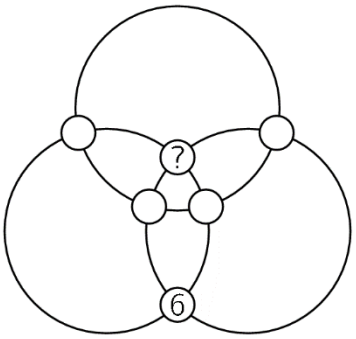
(D) March 20, 2025 (E) March 19, 2026

SAMPLE QUESTION FOR 4 POINTS

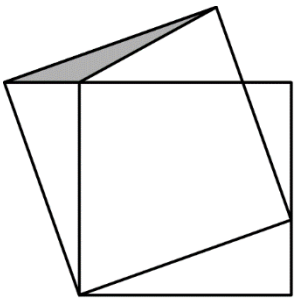
13. The numbers from 1 to 6 are placed in the circles at the intersections of three rings. The position of number 6 is shown. The sums of the numbers on each ring are the same. What number is placed in the circle with the question mark?



(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

SAMPLE QUESTION FOR 5 POINTS

25. The smaller square in the picture has an area of 16 and the gray triangle has an area of 1. What is the area of the larger square?



(A) 17 **(B)** 18 (C) 19 (D) 20 (E) 21

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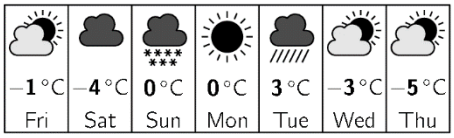
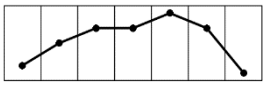
Math Kangaroo 2021 Sample Questions

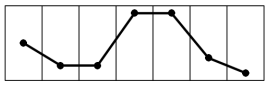
LEVELS 11 AND 12

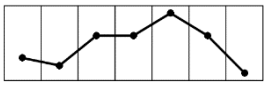
SAMPLE QUESTION FOR 3 POINTS

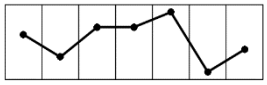
1. Paula's weather app shows a diagram of the predicted weather and maximum temperatures for the next seven days, as shown. Which of the following represents the corresponding graph of maximum temperatures?

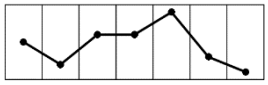


(A) 

(B) 

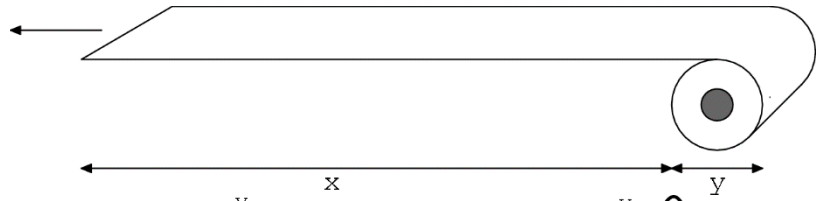
(C) 

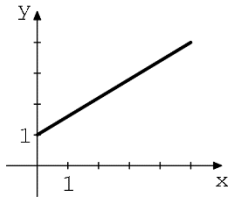
(D) 

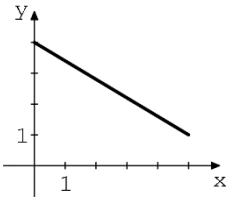
(E) 

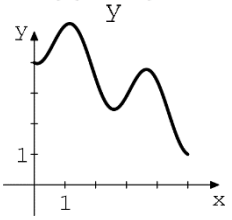
SAMPLE QUESTION FOR 4 POINTS

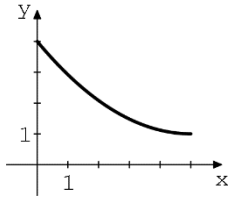
19. A naughty puppy grabs the end of a roll of toilet paper and walks away at a constant speed. Which of the functions below best describes the thickness y of the roll as a function of the unrolled part x?

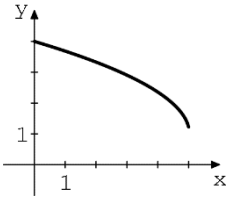


(A) 

(B) 

(C) 

(D) 

(E) 

SAMPLE QUESTION FOR 5 POINTS

30. A certain game is won when one player gets 3 points ahead. Two players A and B are playing the game and at a particular point, A is 1 point ahead. Each player has an equal probability of winning each point. What is the probability that A wins the game?

(A) $\frac{1}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{4}$ (D) $\frac{4}{5}$ (E) $\frac{5}{6}$

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Math Kangaroo 2021 Sample Questions

LEVELS 11 AND 12 ANSWERS

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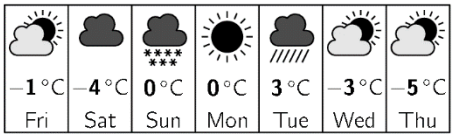
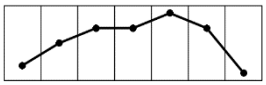
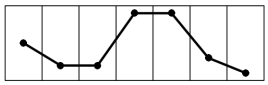
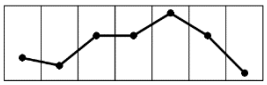
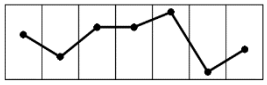
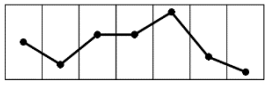


(A) 

(B) 

(C) 

(D) 

(E) 

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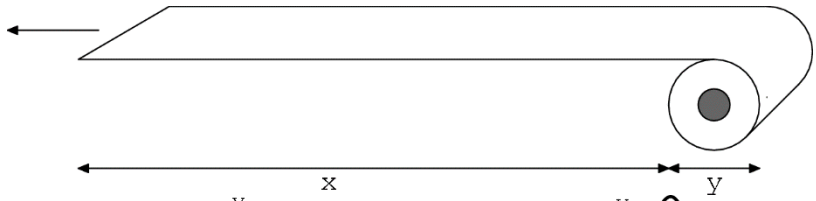
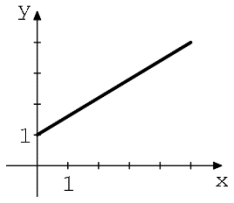
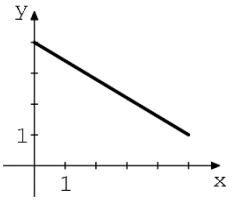
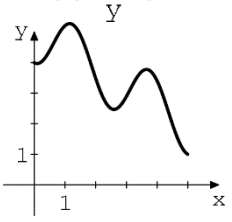
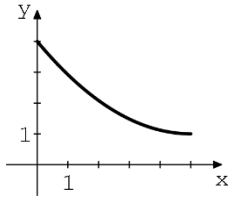
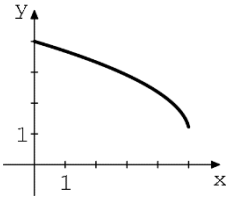


(A) 

(B) 

(C) 

(D) 

(E) 

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