

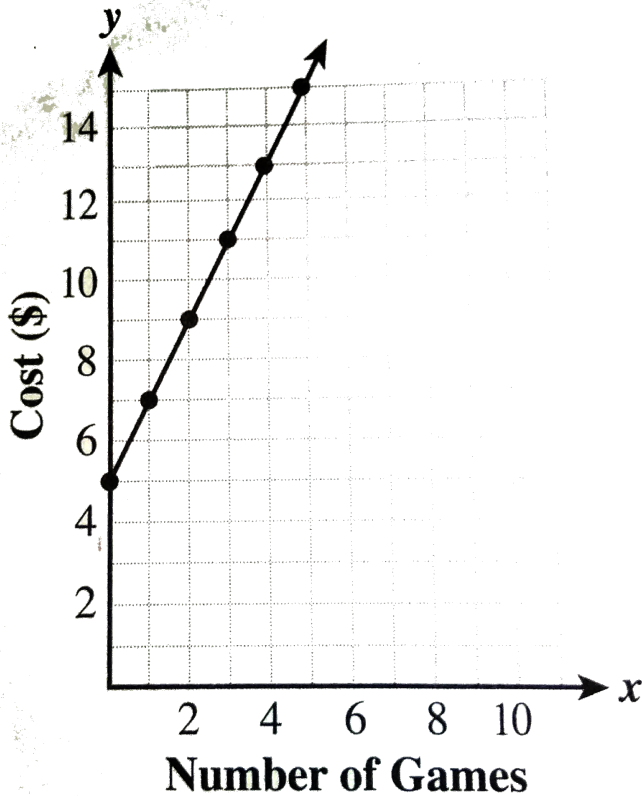


# MATHS

## BOOKS - KAPLAN INC MATHS (ENGLISH)

### MATH TEST-01

**Multiple Choice Question**



1.

The graph above shows the amount that a new, high-tech video arcade charges its customers. What could the y-intercept of this graph represent?

- A. The cost of playing 5 games
- B. The cost per game, which is \$5
- C. The entrance fee to enter the arcade
- D. The number of games that are played

**Answer: C**



**Watch Video Solution**

2.  $\frac{3x}{x + 5} \div \frac{6}{4x + 20}$

Which of the following is equivalent to the expression above, given that  $x \neq -5$ ?

A.  $2x$

B.  $\frac{x}{2}$

C.  $\frac{9x}{2}$

D.  $2x + 4$

**Answer: A**



**Watch Video Solution**

**3.**  $(x + 3)^2 + (y + 1)^2 = 25$

The graph of the equation is a circle. What is the area, in square units, of the circle?

A.  $4\pi$

B.  $5\pi$

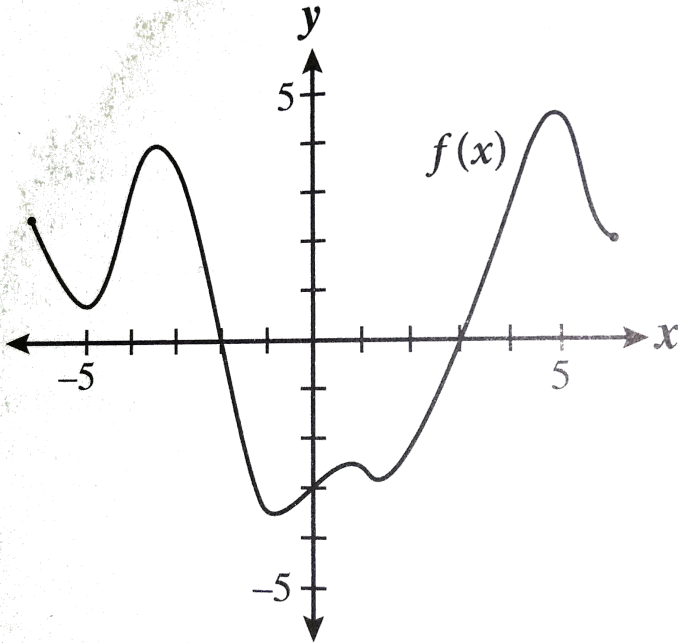
C.  $16\pi$

D.  $25\pi$

**Answer: D**



**Watch Video Solution**



4.

The figure above shows the graph of  $f(x)$ . For which value(s) of  $x$  does  $f(x)$  equal 0?

A. 3 only

B.  $-3$  only

C.  $-2$  and  $3$

D.  $-3$ ,  $-2$ , and  $3$

**Answer: C**



**Watch Video Solution**

$$5. \frac{4(d + 3) - 9}{8} = \frac{10 - (2 - d)}{6}$$

In the equation above, what is the value of  $a$ ?

A.  $\frac{23}{16}$

B.  $\frac{23}{8}$

C.  $\frac{25}{8}$

D.  $\frac{25}{4}$

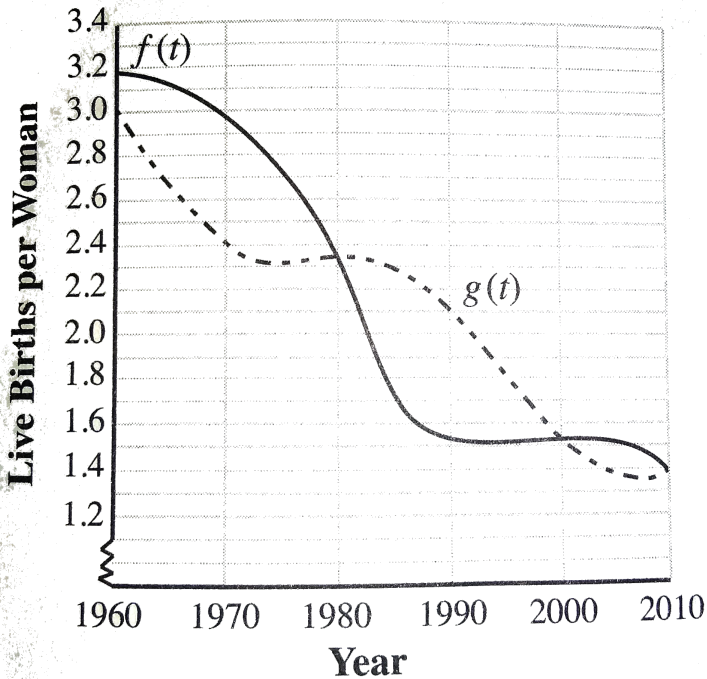
**Answer: B**



**Watch Video Solution**



**Total Fertility Rate, 1960-2010**



6.

Source: Data from Eurostat.

One indicator of a declining economy is a continued decline in birth rates. In 2010, birth rates in Europe were at an all-time low, with the average number of children that a woman has in her lifetime at well below two. In the

figure above,  $f(t)$  represents birth rates for Portugal between 1960 and 2010, and  $g(t)$  represents birth in Slovakia for the same time period. For which value (s) of  $t$  is  $f(t) > g(t)$ ?

A.  $1960 < t < 1980$  only

B.  $1980 < t < 2000$  only

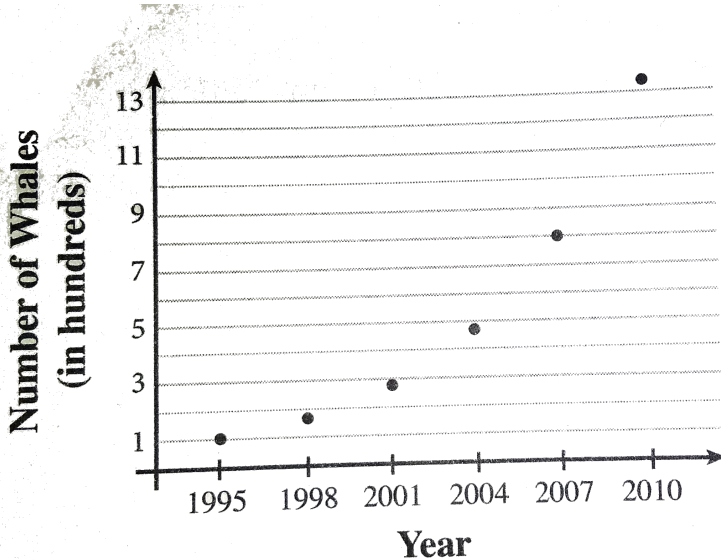
C.  $1960 < t < 1980$  and  $1990 < t < 2000$

D.  $1960 < t < 1980$  and  $2000 < t < 2010$

**Answer: D**



**Watch Video Solution**



7.

The blue whale is the largest creature in the world and has been found in every ocean in the world. A marine biologist surveyed the blue whale population in Monterey Bay, off the coast of California, every three every years between 1995 and 2010. The figure above

shows her result. If  $w$  is the number of blue whales present in Monterey Bay and  $t$  is the number of years since the study began in 1995, which of the following equations best represents the blue whale population of Monterey Bay?

A.  $w = 100 + 2t$

B.  $w = 100 + \frac{t^2}{4}$

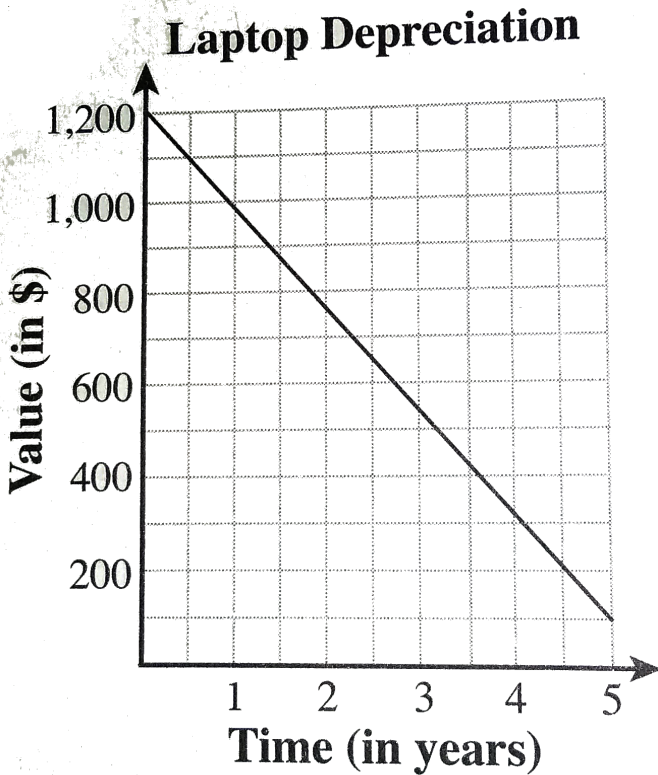
C.  $w = 100 \times 2^t$

D.  $w = 100 \times 2^{\frac{t}{4}}$

**Answer: D**



Watch Video Solution



8.

The figure above shows the straight-line depreciation of a laptop computer over the

first five years of its use. According to the figure, what is the average rate of change in dollars per year of the value of the computer over the five-year period?

A.  $-1,100$

B.  $-220$

C.  $-100$

D.  $100$

**Answer: B**



**Watch Video Solution**

9. What is the coefficient of  $x^2$  when  $6x^2 - \frac{2}{5}x + 1$  is multiplied by  $10x + \frac{1}{3}$ ?

A.  $-4$

B.  $-2$

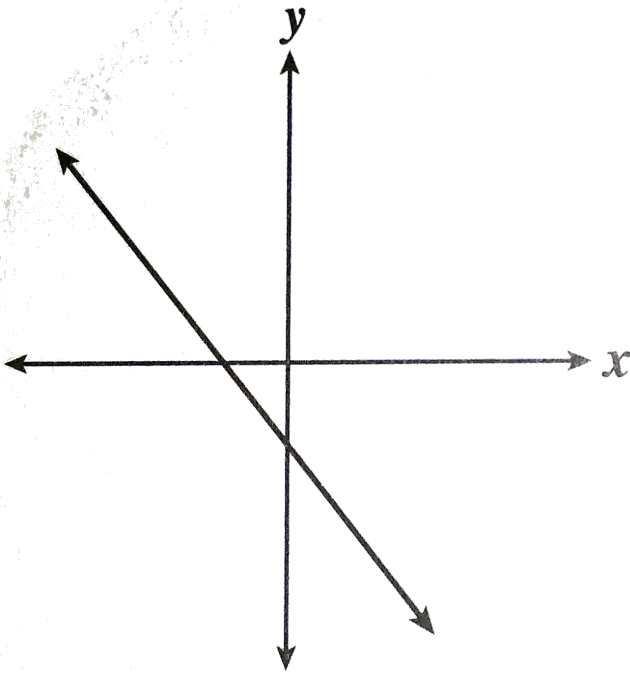
C.  $2$

D.  $4$

**Answer: B**



**Watch Video Solution**



10.

The graph above could represent which of the following equations?

A.  $-6x - 4y = 5$

B.  $-6x - 4y = -5$



$$C. -6x + 4y = 5$$

$$D. -6x + 4y = -5$$

**Answer: A**



**Watch Video Solution**

$$11. \begin{cases} \frac{3}{4}x - \frac{1}{2}y = 12 \\ kx - 2y = 22 \end{cases}$$

If the system of linear equations above has no solution, and  $k$  is a constant, what is the value of  $k$ ?

A.  $-\frac{4}{3}$

B.  $-\frac{3}{4}$

C. 3

D. 4

**Answer: C**



**Watch Video Solution**

**12.** In Delray Beach, Florida, you can take a luxury folf cart ride around downtown. The driver charges \$4 for the first  $\frac{1}{4}$  miles, plus

\$1.50 for each additional  $\frac{1}{2}$  miles. Which inequality represents the number of miles,  $m$ , that you could ride and pay no more than \$10?

A.  $3.25 + 1.5m \leq 10$

B.  $3.25 + 3m \leq 10$

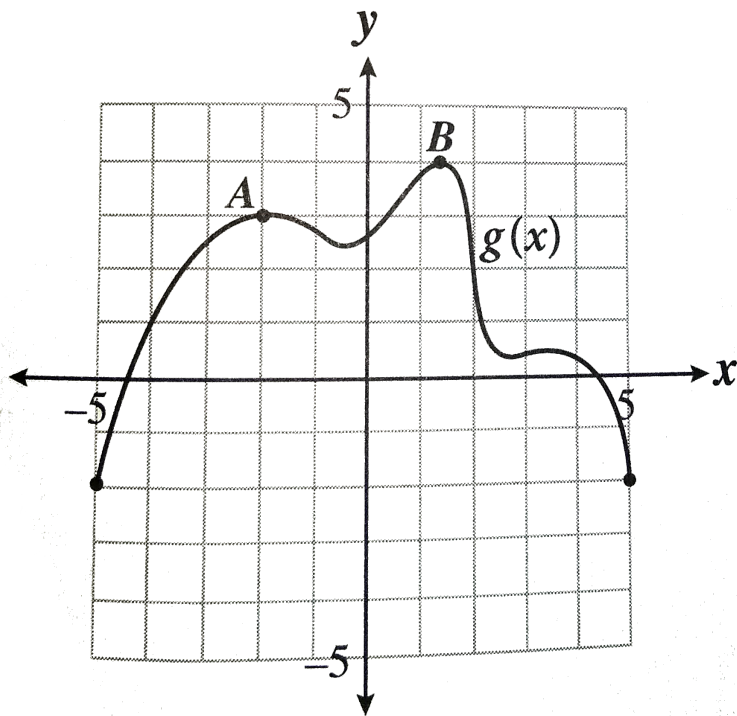
C.  $4 + 1.5m \leq 10$

D.  $4 + 3m \leq 10$

**Answer: B**



**Watch Video Solution**



13.

The graph of  $g(x)$  is shown in the figure above.

If  $h(x) = -g(x) + 1$ , which of the following statements is true?

A. The range of  $h(x)$  is  $-3 \leq y \leq 3$

B. The minimum value of  $h(x)$  is 4.

C. The coordinates of the point A on the function  $h(x)$  is  $(2, 4)$ .

D. The graph of  $h(x)$  is increasing between  $x = -5$  and  $x = -2$

**Answer: A**



**Watch Video Solution**

**14.** If  $a+bi$  represents the complex number that result from multiplying  $3 + 2i$  times  $5 - i$ , what is the value of  $a$ ?

A. 2

B. 13

C. 15

D. 17

**Answer: D**



**Watch Video Solution**

15.  $\frac{1}{x} + \frac{4}{x} = \frac{1}{72}$

In order to create safe drinking water, cities and towns use water treatment facilities to

remove contaminants from surface water and groundwater. Suppose a town has a treatment plant but decides to build a second, more efficient facility. The new treatment plant can filter the water in the reservoir four times as quickly. Working together, the two facilities can filter all the water in the reservoir in 72 hours. The equation above represents the scenario. Which of the following describes what the term  $\frac{1}{x}$  represents.

- A. The portion of the water the older treatment plant can filter in 1 hour

B. The time it takes the order treatment plant to filter the water in the reservoir

C. The time it takes the order treatment plant to filter  $\frac{1}{72}$  of the water in the reservoir

D. The portion of the water the new treatment plant can filter in 4 hour

**Answer: A**



**Watch Video Solution**



16. if  $\frac{1}{4}x = 5 - \frac{1}{2}y$ , what is the value of  $x + 2y$ ?

$$\begin{cases} x + 3y \leq 18 \\ 2x - 3y \leq 9 \end{cases}$$



[Watch Video Solution](#)

17. If  $(a, b)$  is a point in the solution region for the system of inequalities shown above and  $a=6$ , what is the minimum possible value of  $b$ ?

$$\frac{\sqrt{2} \cdot x^{\frac{5}{6}} \cdot x}{\sqrt[3]{x}}$$

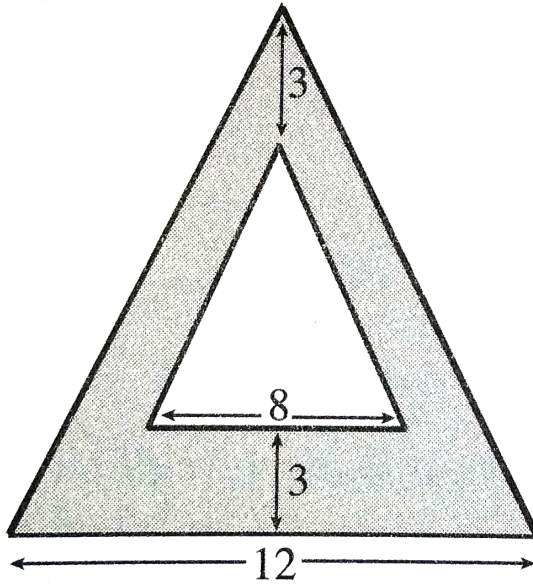


[View Text Solution](#)

**18.** If  $x^n$  is the simplified form of the expression above, what is the value of  $n$ ?



**Watch Video Solution**



19. Note: Figure not drawn to scale.

In the figure above, the area of the shaded region is 52 square units. What is the height of the larger triangle?



[Watch Video Solution](#)

20. If  $y = ax^2 + bx + c$  passes through the points  $(-3, 10)$ ,  $(0, 1)$ , and  $(2, 15)$ , what is the value of  $a + b + c$ ?



**Watch Video Solution**