

1. If f^{-1} is the inverse of the function $f: x \rightarrow \frac{1}{x+2}$, $x \neq -2$, then $f^{-1}(x)$ equals

A $\frac{1}{x+2}$, $x \neq -2$

B $\frac{1}{x+2}$, $x \neq 2$

C $\frac{1}{2-x}$, $x \neq 2$

D $\frac{1-2x}{x}$, $x \neq 0$

2. The straight lines with equations $ay = 3x + 7$ and $y = 5x + 2$ are perpendicular. The value of a is

A $-\frac{1}{5}$

B $-\frac{3}{5}$

C $-\frac{5}{3}$

D -15

3. The least period of $\sin 2x^\circ$ is

A 45

B 90

C 180

D 360

4. Given that $f(x) = 3\sqrt{x}$, $x > 0$, then $f^{-1}(4)$ equals

A $\frac{3}{4}$

B $\frac{3}{2}$

C 3

D 16

5. The graph of $y = \log_{10} x$ lies entirely

A in the first quadrant

B above the x -axis

C below the x -axis

D to the right of the y -axis

6. Which of the following statements is/are true for the lines $2x - y + 8 = 0$ and $x - 2y + 4 = 0$?

(i) They are perpendicular

(ii) They cut the x -axis at the same point.

(iii) They cut the y -axis at the same point.

A (i) only

B (ii) only

C (iii) only

D (i) and (ii) only

7. The number of elements in the solution set of $\sin x^\circ = 1$, where $x \in \mathbb{R}$ and $-360 \leq x \leq 720$, is

A 0

B 1

C 2

D 3

8. Functions f and g are defined by $f(x) = 1 - 2x$ and $g(x) = x^2$ with domain R in each case. The value of $(f \circ g)(-1)$ is

A 4

B 3

C 1

D -1

9. Given that $g(x) = \frac{x^3 - 1}{2}$ $x \in R$, then $g^{-1}(x)$ equals.

A $\frac{2}{x^3 - 1}$

B $\sqrt[3]{2x + 1}$

C $2\sqrt[3]{x + 1}$

D $2\sqrt[3]{x + 1}$

10. A straight line passing through the point $(0, 3)$ is perpendicular to the line $x - 2y - 5 = 0$. Its equation is

A $y + 2x - 3 = 0$

B $y + 2x + 3 = 0$

C $y - 2x - 3 = 0$

D $2y + x - 6 = 0$