Multiple choice questions - Functions, modulus and partial fractions

Year: Year 13 · 10

Question 1 If $f(x) = x + 2$ and $g(x) = 3x$, $fg(x) =$

- ◯ **A.** $3x + 2$
- ◯ **B.** $3x + 6$
- ◯ **C.** $3x + 2x$
- ◯ **D.** $x + 6$

Question 2 The range of $f(x) = (x - 1)^2 + 4$, $x \in \mathbb{R}$, is

- ◯ **A.** $f(x) \geq 1$
- ◯ **B.** $f(x) \geq 4$
- ◯ **C.** $f(x) \leq 4$
- ◯ **D.** $f(x) > 0$

Question 3 The inverse of $f(x) = 2x - 5$ is

- ◯ **A.** $\dfrac{x - 5}{2}$
- ◯ **B.** $\dfrac{1}{2x - 5}$
- ◯ **C.** $\dfrac{x + 5}{2}$
- ◯ **D.** $2x + 5$

Question 4 $|x - 3|$ means

- ◯ **A.** x or $x > 5$
- ◯ **B.** x
- ◯ **C.** -5
- ◯ **D.** 1

Question 5 $|x + 1| = 4$ has solutions

- ◯ **A.** $x = 3, -5$
- ◯ **B.** $x = 3, 5$
- ◯ **C.** $x = -3, 5$
- ◯ **D.** $x = 4, -4$

Question 6 The partial fraction form of $\dfrac{1}{(x + 1)(x + 2)}$ is

- **A.** $\frac{1}{x+1}+\frac{1}{x+2}$
- **B.** $\frac{1}{x+1}-\frac{1}{x+2}$
- **C.** $\frac{1}{x+2}-\frac{1}{x+1}$
- **D.** $\frac{2}{x+1}-\frac{1}{x+2}$

Question 7 The graph of f^{-1} is the reflection of f in

- **A.** the x-axis
- **B.** the y-axis
- **C.** the line $y=x$
- **D.** the line $y=-x$

Question 8 For $\frac{3x+5}{(x+1)^2}$ the correct form is

- **A.** $\frac{A}{(x+1)^2}$
- **B.** $\frac{A}{x+1}+\frac{B}{x+1}$
- **C.** $\frac{Ax+B}{(x+1)^2}$
- **D.** $\frac{A}{x+1}+\frac{B}{(x+1)^2}$

Question 9 The domain of f^{-1} equals

- **A.** the range of f
- **B.** the domain of f
- **C.** the roots of f
- **D.** the range of f^{-1}

Question 10 $|2x-1|=3x$ has solution(s)

- **A.** $x=1$ only
- **B.** $x=\frac{1}{5}$ only
- **C.** $x=\frac{1}{5},-1$
- **D.** $x=1,\frac{1}{5}$

Answer grid - Functions, modulus and partial fractions

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