Transformation
Precalc RH

From SAT subject test

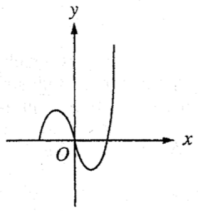
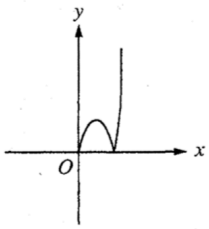


Figure 4

11. The graph of $y = f(x)$ is shown in Figure 4. Which of the following could be the graph of $y = |f(x)|$?

(A)


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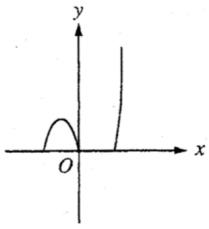
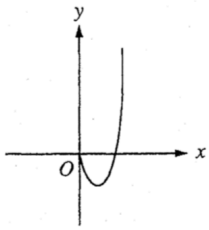
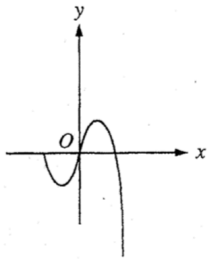
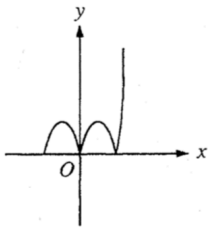


(C)


(D)


(E)


20. If $f:(x, y) \rightarrow (x + 2y, y)$ for every pair (x, y) in the plane, for what points (x, y) is it true that $(x, y) \rightarrow (x, y)$?

(A) The set of points (x, y) such that $x = 0$
(B) The set of points (x, y) such that $y = 0$
(C) The set of points (x, y) such that $y = 1$
(D) $(0, 0)$ only
(E) $(-1, 1)$ only

28. If $f(-x) = f(x)$ for all real numbers x and if $(3, 8)$ is a point on the graph of f, which of the following points must also be on the graph of f ?

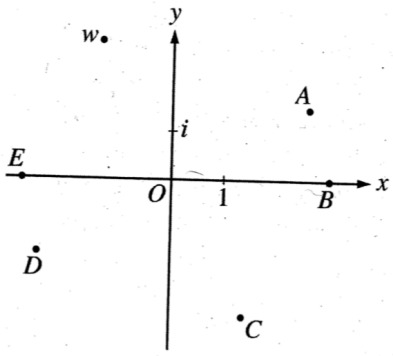
(A) $(-8, -3)$
(B) $(-3, -8)$
(C) $(-3, 8)$
(D) $(3, -8)$
(E) $(8, 3)$

46. Suppose the graph of $f(x) = -x^2$ is translated 3 units left and 1 unit up. If the resulting graph represents $g(x)$, what is the value of $g(-1.6)$?

(A) 2.96
(B) −0.96
(C) −1.56
(D) −1.96
(E) −2.56

47. Which of the following shifts of the graph of $y = x^2$ would result in the graph of $y = x^2 - 2x + k$, where k is a constant greater than 2 ?

(A) Left 2 units and up k units
(B) Left 1 unit and up $k + 1$ units
(C) Right 1 unit and up $k + 1$ units
(D) Left 1 unit and up $k - 1$ units
(E) Right 1 unit and up $k - 1$ units



50. If w is the complex number shown in the figure above, which of the following points could be $-iw$?

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

From competitions,

9. The point $(-3, 2)$ is rotated $90°$ clockwise around the origin to point B. Point B is then reflected in the line $y = x$ to point C. What are the coordinates of C?

(A) $(-3, -2)$ **(B)** $(-2, -3)$ **(C)** $(2, -3)$ **(D)** $(2, 3)$ **(E)** $(3, 2)$

13. The parabola with equation $y = ax^2 + bx + c$ and vertex (h, k) is reflected about the line $y = k$. This results in the parabola with equation $y = dx^2 + ex + f$. Which of the following equals $a + b + c + d + e + f$?

(A) $2b$ **(B)** $2c$ **(C)** $2a + 2b$ **(D)** $2h$ **(E)** $2k$

19. A parabola with equation $y = ax^2 + bx + c$ is reflected about the x-axis. The parabola and its reflection are translated horizontally five units in opposite directions to become the graphs of $y = f(x)$ and $y = g(x)$, respectively. Which of the following describes the graph of $y = (f + g)(x)$?

(A) a parabola tangent to the x-axis

(B) a parabola not tangent to the x-axis **(C)** a horizontal line

(D) a non-horizontal line **(E)** the graph of a cubic function