Comprehensive Coordinate Geometry Drill
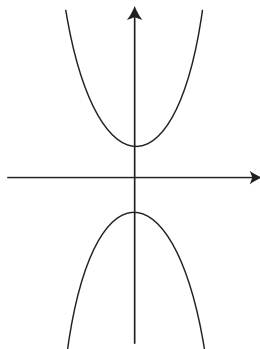
The answers can be found in Part IV.

1. What is the *x*-intercept of the line containing the points (19, 7) and (–4, 18)?

   (A) (33.636, 0)
   (B) (–33.636, 0)
   (C) (370, 0)
   (D) (0.478, 0)
   (E) (0, 48)

2. What is the slope of a line perpendicular to the line defined by the equation $4x + 7y = 23$?

   (A) –4

   (B) $-\dfrac{4}{7}$

   (C) $\dfrac{7}{4}$

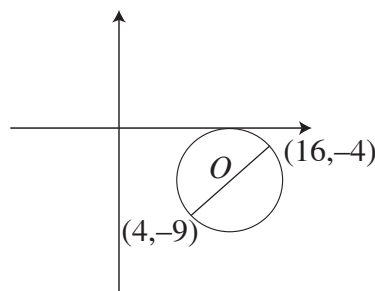   (D) $\dfrac{23}{7}$

   (E) 4

5. Which of the following could be the equation of the graph shown above?

   (A) $y = x^2 + 4$

   (B) $y = -x^2 - 4$

   (C) $\dfrac{x^2}{4} - \dfrac{y^2}{4} = 1$

   (D) $\dfrac{y^2}{4} - \dfrac{x^2}{4} = 1$

   (E) $\dfrac{x^2}{4} + \dfrac{y^2}{4} = 1$

12. What are the coordinates of the vertex of the parabola defined by the equation $y = -3x^2 + 5x - 11$?

    (A) (0, –11)
    (B) (0.833, –8.917)
   (C) (0.833, –11)
    (D) (2.557, 0)
    (E) (–0.891, 0)

18. What is the equation of the circle with center *O*?

    (A) $(x-10)^2 + (y+6.5)^2 = 42.25$

    (B) $(x+10)^2 + (y-6.5)^2 = 42.25$

    (C) $(x-10)^2 + (y+6.5)^2 = 6.5$

    (D) $(x+10)^2 + (y-6.5)^2 = 6.5$

    (E) $(x-20)^2 + (y+13)^2 = 42.25$

22. Triangle *ABC* lies in the *xy*-coordinate system. Point *A* is located at (–2, 4). Point *B* is located at (0.5, 12). Point *C* is located at (7, –5). What is the distance between the midpoint of $\overline{AB}$ and point *C*?

    (A) 8.381
    (B) 12.728
    (C) 14.424
    (D) 15.134
    (E) 229.063

(0, 16)

(4, 0)
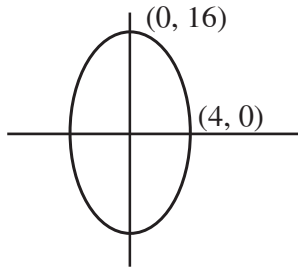
25. Which of the following could be the equation of the graph shown above?

(A) $\dfrac{x^2}{16} + \dfrac{y^2}{256} = 1$

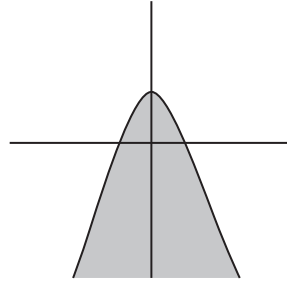(B) $\dfrac{x^2}{4} + \dfrac{y^2}{16} = 1$

(C) $\dfrac{x^2}{8} + \dfrac{y^2}{32} = 1$

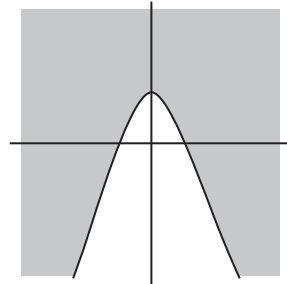(D) $\dfrac{x^2}{64} + \dfrac{y^2}{1024} = 1$

(E) $\dfrac{x^2}{256} + \dfrac{y^2}{16} = 1$

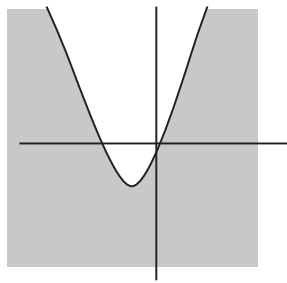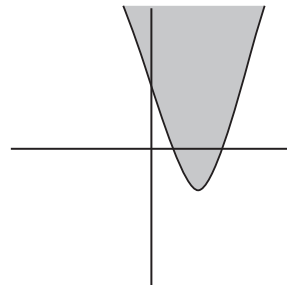28. Which of the following is the graph of $y \le (x-2)^2 - 3$?

(A)

(B)
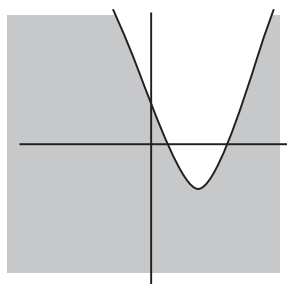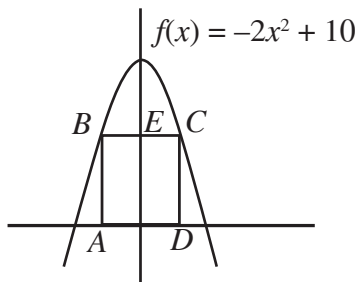

(C)

(D)

(E)

36. Which of the following points is on the y-axis and equidistant from (0, 2) and (6, 0)?

(A) (3, 1)
(B) (0, –8)
(C) (0, 1)
(D) (0, 3)
(E) (0, 8)

$f(x) = -2x^2 + 10$

B E C

A D

Note: Figure not drawn to scale

42. In the figure above, rectangle *ABCD* intersects the function $f(x)$ at points *B* and *C*. Point *E* is located at (0, 3.5). What is the area of rectangle *ABCD*?

(A) 1.803
(B) 3.250
(C) 3.606
(D) 6.310
(E) 12.619
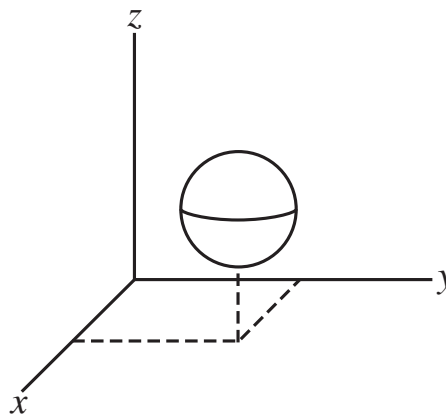
49. A sphere with radius 5 and center (5, 7, 6) is shown in the triaxial coordinate system above. Which of the following is NOT a point on the sphere?

(A) (0, 7, 6)
(B) (5, 2, 6)
(C) (5, 3, 3)
(D) (5, 4, 10)
(E) (2, 7, 9)