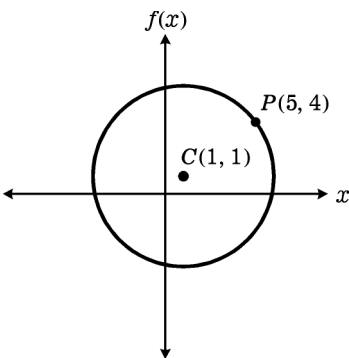1. In the figure, $ABCD$ is a rectangle and
    $\dfrac{CE}{CD} = \dfrac{1}{2}$. What is the ratio of the area of
    triangle BDE to the area of the rectangle
    $ABCD$?

    A. $1:4$ B. $1:2$ C. $2:3$ D. $2:1$

2. | 20, 30, 40, 50, 60 |

    The average (arithmetic mean) of the five
    numbers shown is *not* equal to the average
    of

    A. 30 and 50   B. 30, 40, and 50
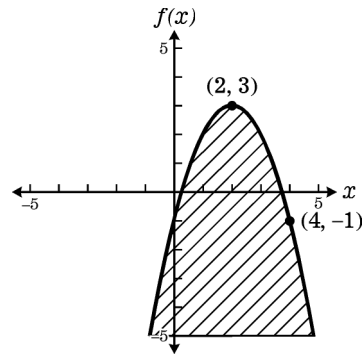
    C. 20, 50, and 60   D. 20, 40, and 60

3. In the figure above, circle C has center $(1, 1)$
    and contains the point $(5, 4)$. What is the
    area of circle C?
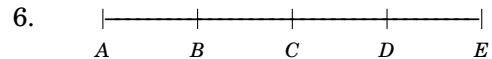
    A. 10π B. 15π C. 20π D. 25π

4. For any real number n, $\blacktriangleright n = \dfrac{n^2 - 1}{n + 1}$.
    Find $\dfrac{\blacktriangleright 5}{\blacktriangleright 3}$.

    A. $\frac{2}{3}$ B. 2   C. 4   D. 6

5. The figure above shows the graph of an
    inequality bounded by a quadratic function f
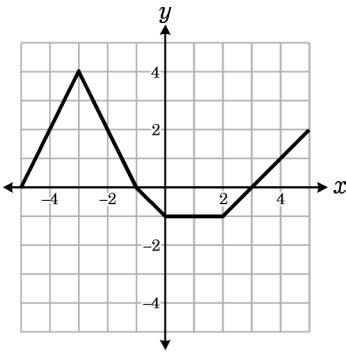   with vertex at $(2, 3)$. Which inequality
    represents the shaded area?

    A. $f(x) \le -(x - 2)^2 + 3$

    B. $f(x) \ge -\frac{1}{2}(x - 2)^2 + 3$

    C. $f(x) \le -\frac{1}{2}(x - 2)^2 + 3$

    D. $f(x) \le -(x - 2)^2 - 4$

6.

    On line segment AE, C is the midpoint of
    $\overline{AE}$ and $AB = DE$. Which of the following
    must be true?

    I. $AC = CE$

    II. $BC = CD$

    III. B is the midpoint of $\overline{AC}$

    A. I only   B. II only

    C. I and II only   D. I, II and III

7. The figure above shows the graph of function f. If $f(a) = -1$, which of the following is a possible value of a?

A. -5 B. -3 C. -1 D. 1

8. Given the following functions:

$$f(x) = x - 2$$
$$g(x) = 1 - x^2$$

What is the value of $f(g(x + 2))$?

A. $x^2 - 4x + 5$ B. $x^2 + 4x - 5$

C. $x^2 - 4x - 5$ D. $-x^2 - 4x - 5$

9. If $f(x) = \dfrac{4t^3}{S}$, what happens to the value of $f(x)$ when t is doubled and S is doubled?

A. $f(x)$ is multiplied by $\frac{2}{3}$

B. $f(x)$ is multiplied by $\frac{8}{3}$

C. $f(x)$ is multiplied by 4

D. $f(x)$ is not changed

10. Bob takes 6 minutes to complete one lap around the school's track. Al takes 8 minutes to complete one lap around the school's track. If the boys begin running together, and keep running at the same rates, how many minutes will it be before they cross the starting line together?

A. 12 B. 16 C. 24 D. 48

11. You have placed $8,000 in your bank account. The bank has a yearly rate of 2.5% compounded daily (1 year = 365 days). If no money is added or withdrawn from the account, approximately how much money (to the nearest dollar) will be in the account after 4 years?

A. $8,230 B. $8,231

C. $8,441 D. $8,841

12. What is the 8th term of the following geometric sequence?

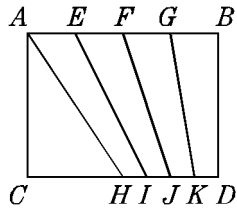256, 128, 64, 32, . . .

A. 2 B. 4 C. 8 D. 16

SAT practice test (A)   3/14/2018

1.
Answer: A

2.
Answer: C

3.
Answer: D

4.
Answer: B

5.
Answer: A

6.
Answer: C

7.
Answer: D

8.
Answer: D

9.
Answer: C
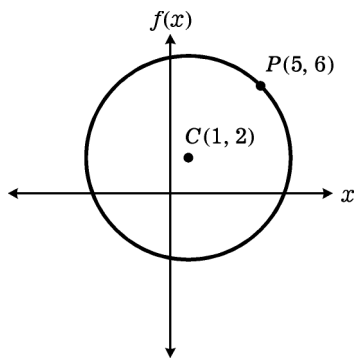
10.
Answer: C

11.
Answer: D

12.
Answer: A

1. In the figure, $AE = EF = FG = GB$ and $HI = IJ = JK = KD = \frac{1}{4}CH$. What is the ratio of the area of triangle AHB to the area of triangle CFJ?

    A. $5:4$ B. $4:3$ C. $5:3$ D. $2:1$

2. $\boxed{2,\ 4,\ 6,\ 8,\ 10,\ 12,\ 14}$

    The average (arithmetic mean) of the seven numbers shown is *not* equal to the average of

    A. 2 and 14   B. 4, 8, and 12
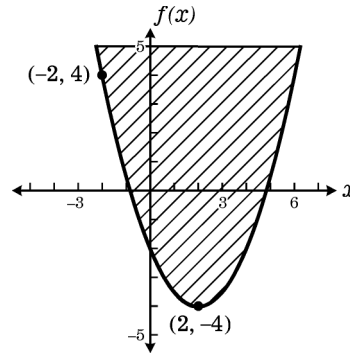
    C. 2, 8, and 12   D. 4, 6, and 14

3. In the figure above, circle C has center $(1, 2)$ and contains the point $(5, 6)$. What is the area of circle C?

    A. $8\sqrt{2}\pi$ B. $16\sqrt{2}\pi$

    C. 20π D. 32π
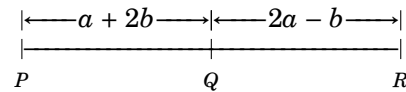
4. For all positive numbers x, if $x^* = (x - 1)^2$, then $(\frac{3}{2})^* =$

    A. $\frac{1}{4}$ B. $\frac{9}{4}$ C. $\frac{15}{4}$ D. $\frac{25}{4}$

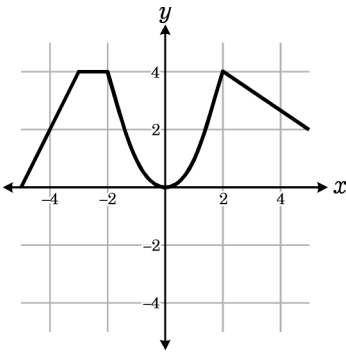
5. The figure above shows the graph of an inequality bounded by a quadratic function f with vertex at $(2, -4)$. Which inequality represents the shaded area?

    A. $f(x) \geq -2(x - 4)^2 - 4$

    B. $f(x) \geq -\frac{1}{2}(4 - x)^2 - 2$

    C. $f(x) \leq -\frac{1}{2}(x + 2)^2 + 4$

    D. $f(x) \geq \frac{1}{2}(x - 2)^2 - 4$

6. Segment PR is divided into two segments with lengths as shown. If Q is the midpoint of $\overline{PR}$, which of the following statements must be true?

    A. $b = 0$ B. $a = b$

    C. $a = 2b$ D. $a = 3b$

7. The figure above shows the graph of function f. If $f(a) = 4$, which of the following is a possible value of a?

   A. -5 B. -3 C. -1 D. 4

8. Given the following functions:

   $$f(x) = x - 2$$
   $$g(x) = 1 - x^2$$

   What is the value of $g(f(x + 2))$?

   A. $1 - x^2$ B. $x^2 - 1$

   C. $x^2 - 2x + 1$ D. $-x^2 - 4x - 5$

9. If $f(x) = \dfrac{4t^3}{S}$, what happens to the value of $f(x)$ when t is doubled and S is tripled?

   A. $f(x)$ is multiplied by $\frac{2}{3}$

   B. $f(x)$ is multiplied by $\frac{8}{3}$

   C. $f(x)$ is multiplied by 2

   D. $f(x)$ is not changed

10. Two phones located are located in an office. One of the phones rings 24 times per minute. The other phone rings 36 times per minute. If both phones ring at the same time, how much time will pass before they again ring at the same time?

    A. 12 seconds

    B. 36 seconds

    C. 1 minute

    D. 1 minute, 24 seconds

11. You have placed $25,000 in your bank account. The bank has a yearly rate of 4% compounded daily (1 year = 365 days). If no money is added or withdrawn from the account, approximately how much money (to the nearest dollar) will be in the account after 10 years?

    A. $36,251   B. $36,484

    C. $36,821   D. $37,295

12. What is the 10th term of the following geometric sequence?

    $$6,\ 18,\ 54,\ 162, \ldots$$

    A. 39,366   B. 118,098

    C. 354,294   D. 1,062,882

SAT practice test (B)   3/14/2018

1.
Answer: B

2.
Answer: C

3.
Answer: D

4.
Answer: A

5.
Answer: D

6.
Answer: D

7.
Answer: B

8.
Answer: A

9.
Answer: B

10.
Answer: C

11.
Answer: D

12.
Answer: B