

Math Level 2 SAT Practice Test 16

1. If $xy \neq 0$ and $3x = 0.3y$, then $\frac{y}{x} =$

- A. 0.1
- B. 1
- C. 3
- D. 9
- E. 10

2. If $f(x) = (3\sqrt{x} - 4)^2$, then how much does $f(x)$ increase as x goes from 2 to 3 ?

- A. 1.43
- B. 1.37
- C. 1
- D. 0.74
- E. 0.06

3. What is the equation of a line with a y -intercept of 3 and an x -intercept of -5 ?

- A. $y = 0.6x + 3$
- B. $y = 1.7x - 3$
- C. $y = 3x + 5$
- D. $y = 3x - 5$
- E. $y = -5x + 3$

4. For what positive value of a does $a - \sqrt{5a + 18}$ equal -4 ?

- A. 0.56
- B. 1
- C. 1.12
- D. 2.06
- E. 4.12

5. If the second term in an arithmetic sequence is 4, and the tenth term is 15, what is the first term in the sequence?

A. 1.18

B. 1.27

C. 1.38

D. 2.63

E. 2.75

6. If $g(x) = |5x^2 - x^3|$, then $g(6) =$

A. -54

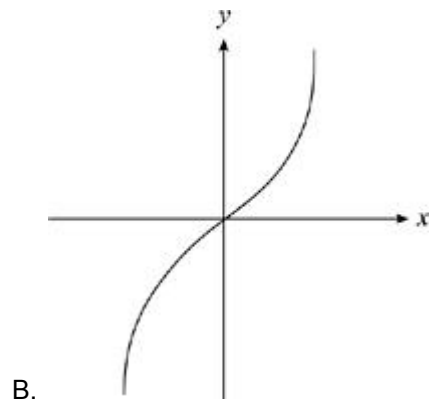
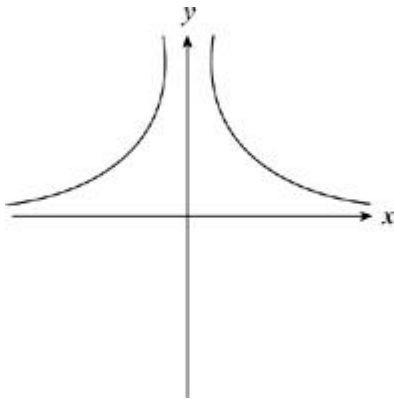
B. -36

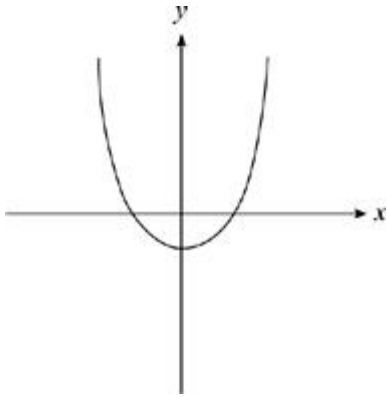
C. 36

D. 216

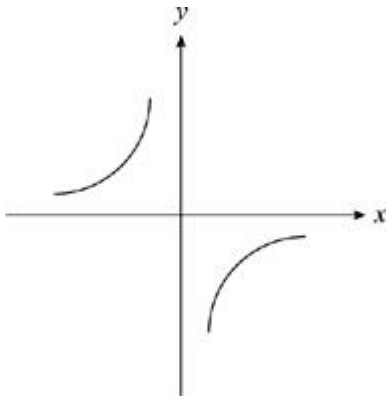
E. 396

7. Which of the following graphs of functions is symmetrical with respect to the line $y = x$?

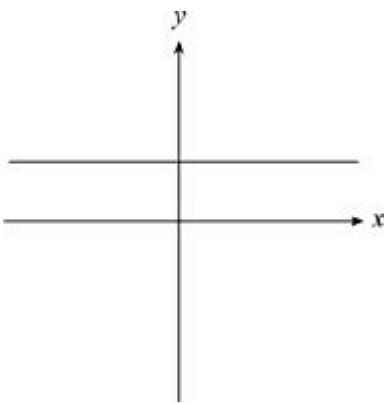




C.



D.



E.

8. If $0^\circ \leq A \leq 90^\circ$ and $\sin A = \frac{1}{3} \sin 75^\circ$, then $A =$

- A. 12.9°
- B. 18.8°
- C. 25.0°
- D. 32.2°
- E. 45.0°

9. If $f(x) = \frac{1}{2}x^2 - 6x + 11$, then what is the minimum value of $f(x)$?

- A. -8
- B. -7
- C. 3.2
- D. 6
- E. 11

10. $|x - y| + |y - x|$

- A. 0
- B. $x - y$
- C. $y - x$
- D. $2|x - y|$
- E. $2|x + y|$

11. $0^\circ \leq A \leq 90^\circ$

$0^\circ \leq B \leq 90^\circ$

If $\sin A = \cos B$, then which of the following must be true?

- A. $A = B$
- B. $A = 2B$
- C. $A = B + 45$
- D. $A = 90 - B$
- E. $A = B + 180$

12.

	Total Units Production	Flawed Units
April	569	15
May	508	18
June	547	16

Figure 1

Each month, some of the automobiles produced at the Carco plant have flawed catalytic converters. According to the chart in Figure 1, what is the probability that a car produced in one of the three months shown will be flawed?

- A. 0.01
- B. 0.02
- C. 0.03
- D. 0.04
- E. 0.05

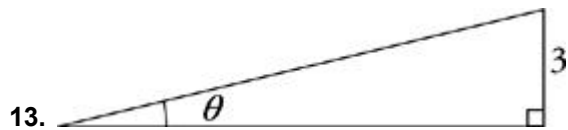
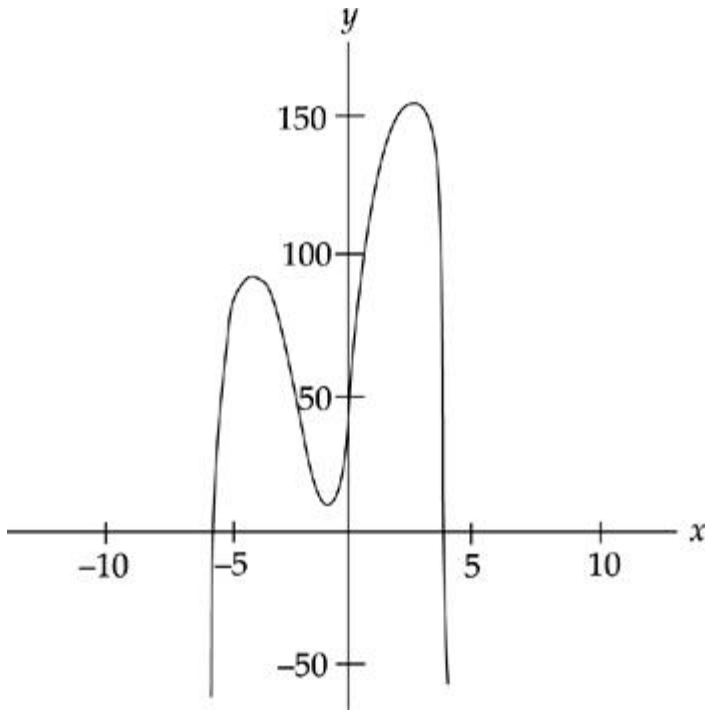


Figure 2

Adamsville building codes require that a wheelchair ramp must rise at an angle (θ) of no less than 5° and no more than 7° from the horizontal. If a wheelchair ramp rises exactly 3 feet as shown in Figure 2, which of the following could be the length of the ramp?

- A. 19.0 feet
- B. 24.0 feet
- C. 28.0 feet
- D. 35.0 feet
- E. 42.0 feet



14.

Figure 3

Figure 3 represents the graph of the function $y = -x^4 - 4x^3 + 14x^2 + 45x - n$. Which of the following could be the value of n ?

- A. -50
- B. -18
- C. 50
- D. 100
- E. 150

$$\frac{x^2 - x - 6}{3x + 6}$$

15. What value does $\frac{x^2 - x - 6}{3x + 6}$ approach as x approaches -2 ?

- A. -1.67
- B. -0.6
- C. 0
- D. 1
- E. 2.33

16. In Titheland, the first 1,000 florins of any inheritance are untaxed. After the first 1,000 florins, inheritances are taxed at a rate of 65%. How large must an inheritance be, to the nearest florin, in order to amount to 2,500 florins after the inheritance tax?

- A. 7,143
- B. 5,286
- C. 4,475
- D. 3,475
- E. 3,308

17. In an engineering test, a rocket sled is propelled into a target. If the sled's distance d in meters from the target is given by the formula $d = -1.5t^2 + 120$, where t is the number of seconds after rocket ignition, then how many seconds have passed since rocket ignition when the sled is 10 meters from the target?

- A. 2.58
- B. 8.56
- C. 8.94
- D. 9.31
- E. 11.26

18. $\sum_{k=1}^{10} 3k - 2 =$

- A. 25
- B. 28
- C. 145
- D. 280
- E. 290

19. If $e^x = 5$, then $x =$

- A. 0.23
- B. 1.61
- C. 7.76
- D. 148.41
- E. 13.59

20. If the greatest possible distance between two points within a certain rectangular solid is 12, then which of the following could be the dimensions of this solid?

- A. $3 \times 3 \times 9$
- B. $3 \times 6 \times 7$
- C. $3 \times 8 \times 12$
- D. $4 \times 7 \times 9$
- E. $4 \times 8 \times 8$

21. Runner A travels a feet every minute. Runner B travels b feet every second. In one hour, runner A travels how much farther than runner B, in feet?

- A. $a - 60b$
- B. $a^2 - 60b^2$
- C. $360a - b$
- D. $60(a - b)$
- E. $60(a - 60b)$

22. A right triangle has sides in the ratio of 5 : 12 : 13. What is the measure of the smallest angle in the triangle, in-degrees?

- A. 13.34
- B. 22.62
- C. 34.14
- D. 42.71
- E. 67.38

23. If $f(x) = \frac{1}{x+1}$, and $g(x) = \frac{1}{x} + 1$, then $g(f(x)) =$

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

24. If $f(x) = (x - \pi)(x - 3)(x - e)$, then what is the greatest possible distance between points at which the graph of $y = f(x)$ intersects the x -axis?

- A. 0.14
- B. 0.28
- C. 0.36
- D. 0.42
- E. 0.72

25. $\frac{x!}{(x-2)!}$

- A. 0.5
- B. 2
- C. x
- D. $x^2 - x$
- E. $x^2 - 2x + 1$