

SAT Prep

Advanced Math 1



CONCEPTS

QUESTIONS

1. Evaluate for $x = 2$: $|2x - 18| + |3x - 7|$



QUESTIONS

2. How many distinct real roots does the equation $x^2 - 5x + 9 = 0$ have?

A. 0

B. 1

C. 2

D. Infinite



QUESTIONS

3. What is the solution set of $|x - 5| < 3$?

A. $2 < x < 8$

B. $x > 8$

C. $x < 2$

D. $3 < x < 5$



QUESTIONS

4. For what value of x is $|x - 3| < -10$ true?

A. 20

B. 13

C. 14

D. There is no such value of x .



QUESTIONS

5. If $x^2 + x - 6 < 0$, what is the number of possible values of integer x which satisfy the given inequality?



QUESTIONS

6. $(2x^2 + 3x + 1) - (-2x^2 + 3x + 2)$

If the expression above is written in the form $ax^2 + bx + c$, in which a , b , and c are constants, what is the value of $a + b + c$?



QUESTIONS

7. $(14x^2 + 9x - 20) / (ax - 1) = 7x + 8 + \frac{-12}{ax-1}$ In the equation above, a is a constant and $ax - 1 \neq 0$.

What is the value of a ?



QUESTIONS

8. If $8,200 \times 300,000$ is equal to 2.46×10^n , what is the value of n ?

A. 7

B. 8

C. 9

D. 10



QUESTIONS

9. $7y^2 - 21xy - 2y + 6x$

Which of the following is equivalent to the expression shown above?

A. $(7y - 3)(y - 2x)$

B. $(7y - 2)(2y - 3x)$

C. $(7y - 2)(y - 3x)$

D. $(7y + 2)(2y - 3x)$



QUESTIONS

10. $\sqrt{2x - 6} = 3 - x$

What is the solution set of the equation above?

A. {3}

B. {5}

C. {3,5}

D. {-3,-5}



QUESTIONS

11. What is the solution of the equation $\sqrt{-3x + 4} = 7$



QUESTIONS

12. If $\frac{3}{x} - \frac{x}{x+2} - \frac{2}{x+2} = 0$, what is/are the value/s of x ?

A. 2 or -3

B. -2 or 3

C. -2

D. 3



QUESTIONS

13. $P = F\left(\frac{1}{2}v^2 + 1\right)$

The above equation gives pressure P , which is exerted by a fluid that is forced to stop moving. The pressure depends on the initial force, F , and the speed of the fluid, v . Which of the following expresses the square of the velocity in terms of the pressure and the force?

A. $v^2 = 2(P - F) - 1$

B. $v^2 = 2(P - F - 1)$

C. $v^2 = 2\left(\frac{P}{F}\right) - 1$

D. $v^2 = 2\left(\frac{P - F}{F}\right)$



QUESTIONS

14. If $x \neq 0$ and ± 1 , which of the following is equivalent to $\frac{1 - \frac{1}{x+1}}{1 + \frac{1}{x^2-1}}$?

A. $\frac{x-1}{x}$

B. $\frac{x+1}{x}$

C. $\frac{x-1}{x^2}$

D. $\frac{x+1}{x^2}$



QUESTIONS

15. If $a = \sqrt{3}$ and $\sqrt{2 - 3x} = \frac{1}{3}a$, what is the value of x ?



QUESTIONS

16. a and b are both negative numbers such that $|2a - 3| = 5$ and $|3 - 4b| = 11$. What is $|b - a|$?



QUESTIONS

17. If $|2x - 4| < 6$, which must be true for the value of x ?

A. $-1 < x < 5$

B. $1 < x < 5$

C. $-5 < x < -1$

D. $-5 < x < 1$



QUESTIONS

18. A supermarket features a guessing game in which customers try to guess the number of jelly beans in a jar, and those whose guess is within 5 jellybeans of the actual number win a prize. Which of the following expressions represents the guesses, G , that would win a prize if the exact number of jellybeans is 232?

A. $|G - 232| \leq 5$

B. $|G - 5| \leq 232$

C. $|G + 5| \leq 232$

D. $|G + 232| \leq 5$



QUESTIONS

19. An ice cream shop advertises that its chocolate chip ice cream has more chocolate chips per scoop than any other store. Its goal is to have 60 chips per scoop, but when it tests its ice cream it allows for any amount between 55 and 65 chips per scoop. Which of the following inequalities represents the number of chips, c , per scoop that the shop allows?

A. $|c - 60| \leq 5$

B. $|c + 60| \leq 5$

C. $|c - 5| \leq 60$

D. $|c + 5| \leq 60$



QUESTIONS

20. If $(x^{20}y^{15})^3 / (y^{40}x^{60}) = x^a y^b$, what is the value of b^a ?





Thank you