Name:_____
School:_____

Algebra I Individual 2018

St. Paul's Tournament

1. Solve the equation: $|r + 7| - 8 = 7$

2. Simplify: $\dfrac{3(x-1)(2x-3)}{6(x-1)(x-5)} \div \dfrac{2x-3}{4x(x-5)}$

3. Find the quotient (Answer should be written as an integer or simplified fraction): $\dfrac{-\frac{5}{3}}{\frac{13}{4}}$

4. Solve the equation for the indicated variable: $z = ma - b$, for a

5. Solve the equation: $-11(12n + 2) = 2(-3n - 11)$

6. Solve the proportion (Give the answer as an integer or simplified fraction): $\dfrac{m+2}{9} = \dfrac{m+3}{3}$

7. Solve the equation. Remember to check for extraneous solutions.

   $\dfrac{1}{3x} + \dfrac{1}{6x^2} = \dfrac{x+4}{6x^2}$

8. Simplify (Your answer should contain only positive exponents): $\dfrac{(-2a^4b^2)^4}{2a^3b^0 \cdot a^3b^4}$

9. Factor the expression completely: $10m^2 + 66m - 112$

10. Solve the inequality: $-6(1 + 2b) > -38 + 4b$

11. Find the slope of the line through the following pair of points: $(-19, 20)$ and $(-11, 20)$

12. Find the product: $(-7x-7)(-2x-8)$

13. Simplify: $3\sqrt{12}+2\sqrt{18}+2\sqrt{27}$

14. Solve the system. Answer must be written as an ordered pair.

$$10x-8y=-24$$

$$2x+2y=24$$

15. Solve the equation. Remember to check for extraneous solutions:

$n-7=\sqrt{2n-11}$

16. Twice the greater of two consecutive odd integers is 13 less than three times the lesser number. Find the integers.

17. Write an equation of a line perpendicular to the x-axis that contains the point (7,-3).

18. A chemistry experiment calls for a 30% solution of copper sulfate. Kendra has 40 milliliters of 25% solution. How many milliliters of 60% solution should she add to obtain the required 30% solution? Give the answer in integer or mixed number form.

19. Write the equation of the line (in slope-intercept form) that is perpendicular to the line through $(9,10)$ and $(3,-2)$ and passes through the x-intercept of that line.

20. Solve the inequality. Negative four times a number plus nine is no more than the number minus twenty-one.

Answers

1. $r = 8, -22$
2. $2x$
3. $-\frac{20}{39}$
4. $\frac{z+b}{m}$
5. $n = 0$
6. $m = -\frac{7}{2}$
7. $x = 3$
8. $8a^{10}b^4$
9. $2(5m - 7)(m + 8)$
10. $b < 2$
11. 0
12. $14x^2 + 70x + 56$
13. $12\sqrt{3} + 6\sqrt{2}$
14. $(4, 8)$
15. $n = 10$
16. $17,\ 19$
17. $x = 7$
18. $\frac{20}{3}$
19. $y = -\frac{1}{2}x + 2$
20. $x > 6$