Probability and Statistics Name_____ ID: 1

Summer Math 2019-2020

Date_____ Period____

For all problems write down the problem, solve the problem(show your work), and place a box around your answers.
Simplify each and state the excluded values.

1) $\dfrac{5x^2 + 33x + 18}{8x^2 + 48x}$

Simplify each expression.

2) $\dfrac{1}{5n + 6} \cdot \dfrac{5n^2 - 34n - 48}{5n}$

3) $\dfrac{v - 9}{v + 1} \div \dfrac{v^2 - 8v - 9}{10}$

4) $\dfrac{a + 6}{6a - 24} - \dfrac{a + 4}{6a - 24}$

5) $\dfrac{\dfrac{5}{x - 1} - \dfrac{x - 1}{4}}{5}$

Solve each equation. Remember to check for extraneous solutions.

6) $1 + \dfrac{m - 8}{m + 1} = \dfrac{m - 7}{m + 1}$

Simplify.

7) $2\sqrt[6]{128x^8y^5}$

Write each expression in exponential form.

8) $\dfrac{1}{\left(\sqrt{5n}\right)^3}$

Solve each equation. Remember to check for extraneous solutions.

9) $\sqrt{2a - 9} = \sqrt{\dfrac{a}{2}}$

10) $\sqrt{7v} = 3 - \sqrt{9 - 2v}$

Divide.

11) $\left(x^3 - 36x + 9\right) \div \left(x + 6\right)$

12) $\left(9b^3 - 91b^2 - 17b + 3\right) \div \left(9b - 1\right)$

Evaluate each function using synthetic substitution.

13) $f(a) = a^4 + 6a^3 + 2a^2 - 30a - 23$ at $a = -4$

Find all zeros.

14) $f(x) = 6x^3 - 21x^2 - 14x - 1$

15) Danielle invests $3.046 in an investment account with a fixed interest rate of 2% compounded 2 times per year. What will the account balance be after 16 years?

Evaluate each expression.

16) $\log_9 81$

Rewrite each equation in logarithmic form.

17) $1000^{\frac{1}{3}} = 10$

Solve each equation.

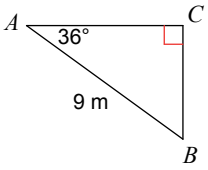
18) $\log(4r + 10) = \log(5r + 8)$

Find the value of the trig function indicated.

19) Find sec θ if cot $\theta = \frac{15}{8}$

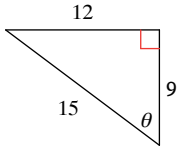
Solve each triangle. Round answers to the nearest tenth.

20)



Find the value of the trig function indicated.

21) sin θ



Convert each degree measure into radians.

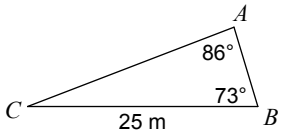
22) 130°

Convert each radian measure into degrees.

23) $-\frac{31\pi}{36}$

Solve each triangle. Round your answers to the nearest tenth.

24)



Solve each system.

25) $-5r - 2s + t = 25$
$-3r - 6t = 12$
$-2s - 3t = -9$

Simplify. Write "undefined" for expressions that are undefined.

26) $\begin{bmatrix} -2 & -2 \\ 3 & -5 \end{bmatrix} \cdot \begin{bmatrix} 1 & -4 & 4 \\ 2 & 3 & 3 \end{bmatrix}$

Factor each and find all zeros.

27) $f(x) = 3x^2 - 2x - 8$

Simplify.

28) $2\sqrt{24} - \sqrt{6} - \sqrt{24}$

29) $\sqrt{15}\left(\sqrt{2} + \sqrt{5}\right)$

30) $\left(2\sqrt{2} - 2\right)\left(\sqrt{2} + 5\right)$