

## 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.

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

Simplify each expression.

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

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

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

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

Solve each equation. Remember to check for extraneous solutions.

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

Simplify.

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

Write each expression in exponential form.

$$8) \frac{1}{(\sqrt{5n})^3}$$

Solve each equation. Remember to check for extraneous solutions.

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

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

Divide.

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

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

**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.**

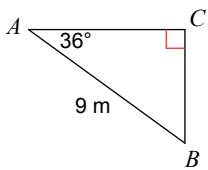
18)  $\log(4r + 10) = \log(5r + 8)$

**Find the value of the trig function indicated.**

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

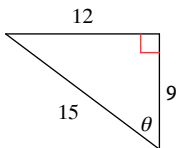
**Solve each triangle. Round answers to the nearest tenth.**

20)



**Find the value of the trig function indicated.**

21)  $\sin \theta$



**Convert each degree measure into radians.**

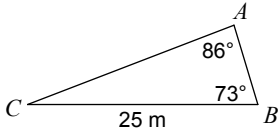
22)  $130^\circ$

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.

$$\begin{aligned} 25) \quad & -5r - 2s + t = 25 \\ & -3r - 6t = 12 \\ & -2s - 3t = -9 \end{aligned}$$

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.

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

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

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

## Answers to Summer Math 2019-2020 (ID: 1)

- |   |   |                                |                          |
|---|---|--------------------------------|--------------------------|
| 1) $\frac{5x+3}{8x}; \{0, -6\}$                                   | 2) $\frac{n-8}{5n}$   | 3) $\frac{10}{(v+1)^2}$        | 4) $\frac{1}{3a-12}$     |
| 5) $\frac{19-x^2+2x}{20x-20}$                                     | 6) $\{0\}$  | 7) $4x\sqrt[6]{2x^2y^5}$       | 8) $(5n)^{-\frac{3}{2}}$ |
| 9) $\{6\}$  | 10) $\{0\}$   | 11) $x^2 - 6x + \frac{9}{x+6}$ | 12) $b^2 - 10b - 3$      |
| 13) 1   | 14) $\left\{-\frac{1}{2}, \frac{6+\sqrt{39}}{3}, \frac{6-\sqrt{39}}{3}\right\}$ | 15) \$4,188.07                 |                          |
| 16) 2   | 17) $\log_{1000} 10 = \frac{1}{3}$  | 18) $\{2\}$                    | 19) $\frac{17}{15}$      |
| 20) $m\angle B = 54^\circ, a = 5.3 \text{ m}, b = 7.3 \text{ m}$  |   | 21) $\frac{4}{5}$              | 22) $\frac{13\pi}{18}$   |
| 23) $-155^\circ$  | 24) $m\angle C = 21^\circ, b = 24 \text{ m}, c = 9 \text{ m}$                   |                                | 25) $(-6, 3, 1)$         |
| 26) $\begin{bmatrix} -6 & 2 & -14 \\ -7 & -27 & -3 \end{bmatrix}$ | 27) Factors to: $f(x) = (3x+4)(x-2)$<br>Zeros: $\left\{-\frac{4}{3}, 2\right\}$ |                                | 28) $\sqrt{6}$           |
| 29) $\sqrt{30} + 5\sqrt{3}$                                       | 30) $-6 + 8\sqrt{2}$  |                                |                          |