

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

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

1)  $m\angle B = 98^\circ$ ,  $a = 17$  in,  $b = 28$  in

2)  $m\angle A = 86^\circ$ ,  $m\angle C = 73^\circ$ ,  $c = 24$  cm

3)  $m\angle C = 101^\circ$ ,  $m\angle B = 37^\circ$ ,  $a = 30$  mi

4)  $m\angle C = 11^\circ$ ,  $m\angle A = 96^\circ$ ,  $c = 5$  yd

5)  $c = 27$  in,  $a = 30$  in,  $m\angle B = 127^\circ$

6)  $b = 18$  cm,  $c = 23$  cm,  $a = 14$  cm

**Find the magnitude and direction angle of the resultant vector.**

7)  $|\mathbf{f}| = 21$ ,  $246^\circ$   $|\mathbf{v}| = 7$ ,  $211^\circ$   
Find:  $\mathbf{f} + \mathbf{v}$

8)  $|\mathbf{u}| = 23$ ,  $60^\circ$   $|\mathbf{v}| = 15$ ,  $336^\circ$   
Find:  $\mathbf{u} + \mathbf{v}$

**For each function, identify the holes, horizontal asymptote, vertical asymptotes, and Oblique Asymptotes.**

$$9) f(x) = \frac{x^2 + 2x - 8}{2x^2 + 12x + 16}$$

$$10) f(x) = \frac{x^2 - 7x + 12}{x^2 - 4x + 3}$$

$$11) f(x) = \frac{x^2 + x - 12}{-3x + 6}$$

$$12) f(x) = -\frac{3}{x - 1}$$

**Expand each logarithm.**

$$13) \log_7 \left( \frac{12}{11^2} \right)^3$$

$$14) \log_5 (10^4 \cdot 3^3)$$

**Condense each expression to a single logarithm.**

$$15) 6\log_7 8 - 3\log_7 11$$

$$16) \log_8 7 + \frac{\log_8 11}{2} + \frac{\log_8 2}{2}$$

**Solve each equation. Round your answers to the nearest ten-thousandth.**

$$17) 5^x = 86$$

$$18) 18^x = 36$$

$$19) 8^b = 1$$

$$20) 13^b = 21.3$$

$$21) 7 \cdot 3^{8p} = 70$$

$$22) 11^{n+4} - 10 = 78$$

$$23) 16^{7x} - 5 = 26$$

$$24) 5 \cdot 12^{-3x} = 97$$

Use a calculator to approximate each to the nearest thousandth.

25)  $\log_3 1.26$

26)  $\log_7 45$

27)  $\log_5 59$

28)  $\ln 1.2$

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

29)  $-3 \begin{bmatrix} -1 \\ -1 \\ -6 \\ 2 \end{bmatrix}$

30)  $\begin{bmatrix} -4 & -3 \\ 0 & 5 \end{bmatrix} \cdot \begin{bmatrix} 6 & -3 \\ -3 & -6 \\ 3 & -3 \end{bmatrix}$

31)  $-3 \begin{bmatrix} 1 & 2 \\ -2 & -1 \end{bmatrix} \cdot \begin{bmatrix} -6 & 1 & -3 \\ 4 & -4 & 6 \end{bmatrix}$

32)  $-5 \left( \begin{bmatrix} -2 \\ -4 \\ 2 \end{bmatrix} - \begin{bmatrix} 1 \\ 6 \\ 4 \end{bmatrix} \right)$

33)  $\begin{bmatrix} 3 \\ -2 \\ 5 \\ 0 \end{bmatrix} - 4 \begin{bmatrix} 3 & 5 & -3 \\ -6 & -3 & -5 \end{bmatrix}$

34)  $4 \begin{bmatrix} 0 \\ -3 \\ -2 \end{bmatrix}$

35)  $3 \begin{bmatrix} -2 \\ 3 \\ 2 \end{bmatrix}$

36)  $-3 \cdot \left( \begin{bmatrix} -1 & -3 \\ 1 & 2 \\ 4 & 0 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 \\ -2 & 0 \end{bmatrix} \right)$