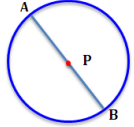


<p>1) Express as a single log: a) $3 \log_4 2 - \log_4 2$ b) $\log 3 + \log 5$ c) $3 \log_4 2 - \log_4 2 + \log_4 3$</p>	<p>7) Find the common ratio: $\frac{1}{4}, \frac{1}{12}, \frac{1}{36}, \frac{1}{108}, \dots$</p>	<p>13) Subtract: $\frac{3x^2 - 1}{x^2 - 3x - 18} - \frac{x + 2}{x - 6}$</p>	<p>19) Solve: $0.25^x = 8^{x-1}$</p>
<p>2) Simplify: $\frac{\log_2 2^{x+5} + \log_5 5^6}{\log_2 32}$</p>	<p>8) Find the sum of the geometric series below $\sum_{n=1}^{\infty} 60 \left(\frac{1}{10}\right)^n$</p>	<p>14) Multiply: $\frac{4x^3 + 12x^2}{2x^3 - 16x^2} \cdot \frac{2x^2 - 10x - 48}{x + 3}$</p>	<p>20) Use the function: $f(x) = \frac{x^5}{x^3}$ Identify the following: a. hole(s)/asymptote(s) b. sketch the graph</p>
<p>3) Rewrite in exponential form, then evaluate: $\log_4 \frac{1}{16} = x$</p>	<p>9) Evaluate: $\sum_{n=2}^5 2^{n-1}$</p>	<p>15) Solve: $\frac{1}{x-1} + \frac{4}{x+1} = \frac{7}{x^2-1}$</p>	<p>21) Describe the transformations $f(x) = \sqrt{-(x-2)} + 3$</p>
<p>4) Solve: $2 \log_3 x - \log_3 4 = 2$</p>	<p>10) What is S_{30} for $40 + 30 + 20 + 10 + \dots$?</p>	<p>16) Solve: $x + 6 = (4x + 21)^{\frac{1}{2}}$</p>	<p>22) Solve: $\sqrt[3]{x+6} = 2\sqrt[3]{x-1}$</p>
<p>5) Evaluate $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$</p>	<p>11) Find the 10th term of the geometric sequence with $a_5 = 96$ and $a_7 = 384$.</p>	<p>17) Solve: $\frac{2x+1}{x} \geq 3$</p>	<p>23) A skier begins at a lodge and travels 3 miles to a pond. The skier turns around and travels 3 miles back to the lodge. The wind speed was 7 miles per hour and the speed of the skier, without wind speed, was x miles per hour.</p>
<p>6) Describe the transformations and asymptotes of: a) $y = -\ln(3x) + 5$ b) $y = 4(e)^{-x} - 3$</p>	<p>12) A movie earned \$50M in the first week that it was released. In each successive week, sales declined by 20%. How much money from sales was made in week 12?</p>	<p>18) Use the function: $f(x) = \frac{x-2}{x^2-2x-3}$ Identify the following: a. zeros b. asymptotes c. End Behavior</p>	<p>a. Write the expressions for the skier's speed traveling to the pond and back to the lodge. b. Write a rational equation that would represent the total time traveled $t(x)$.</p>

<p>24) Use the function:</p> $f(x) = \frac{1}{x+4} - 3$ <p>Identify the following:</p> <ol style="list-style-type: none"> asymptotes end behavior domain and range Intervals of increasing/decreasing 	<p>29) Find the center, a, b, c, length of transverse and conjugate axis:</p> $\frac{y^2}{25} - \frac{(x+2)^2}{49} = 1$	<p>37) What is the value of $\csc 540^\circ$?</p> <p>38) Identify the amplitude, period, frequency, midline, phase shift, domain, and range of:</p> $f(x) = -\frac{1}{2}\cos(2\theta + \pi) - 3.$
<p>25) Write in standard form and identify the conic section it represent:</p> $x^2 + y^2 - 16x + 10y + 53 = 0$	<p>30) Write the equation of the parabola with focus at $(-4, 0)$ and directrix at $x = 2$.</p>	<p>40) Kat is parasailing at a vertical height of 115 ft. If 160 ft of towline attaches her to the boat, what is the angle of depression from Kat to the boat?</p>
<p>26) Identify the conic section represented by each graph:</p> <ol style="list-style-type: none"> $y - 5 = x^2$ $4(x - 1)^2 + y^2 = 8$ $3y^2 + 6 = x^2 + 5$ $x^2 - 121 = -(y + 4)^2$ 	<p>31) Given: $P(6, 8)$ and $B(9, 4)$</p>  <ol style="list-style-type: none"> Find the coordinates of A. Find the length of the radius. 	<p>41) Prove:</p> $\frac{\cos x + 1}{\sin^3 x} = \frac{\csc x}{1 - \cos x}$
<p>27) Identify the conic section below and find the center, a, b, c, length of major and minor axis:</p> $9(x + 9)^2 + 81(y + 4)^2 = 729$	<p>32) Given: $\triangle MNP$, $m = 7$, $m\angle M = 55^\circ$, & $m\angle N = 90^\circ$. Find p in terms of sine, cosine, or tangent.</p>	
<p>28) Find the exact value of $\tan(-195^\circ)$ using sum/difference identities.</p>	<p>33) Prove:</p> $\frac{\cos \theta \sin 2\theta}{1 + \cos 2\theta} = \sin \theta$	