PRE-CALC TRIG

Day 40

Chapter 1 Functions and Their Graphs

Level 2

Find Domain and Range (2 problems)
Given f(x) and g(x) Evaluate (4 problems)

Level 3

Evaluate composition function from table (1 problem)
Evaluate composition problem given functions (1 problem)
Find inverse (1 problem)

Level 4

Write, solve, and interpret an equation (1 problem)

Chapter 2 Polynomials and Rational Functions

Level 2

Find vertex and x-intercepts (1 problem)
Solve the following quadratics (3 problems)
Simplify negative radical (1 problem)
Identify a Horizontal Asymptote (1 problem)

Level 3

Given a factor of a polynomial find the other zeros (1 problem)
Describe end behavior (1 problem)
Find limit (1 problem)

Level 4

Use limit to find slope of tangent (1 problem)

Chapter 3 Exponential and Logarithmic Functions

Level 2

Rewrite log and exponential form (2 problems)
Evaluate logs (2 problems)

Level 3

Solve exponential and log functions (2 problems)

Level 4

Solve a compound continuously story problem (1 problem)

Chapter 4 (Section 1) Radians & Degrees Measure

Level 2

Convert degrees to radians and radians to degrees (2 problems)
Identify coterminal angles (2 problems)
Find intercepted arc given a central angle (1 problem)

Level 3

Find area of a circular region given a central angle (1 problem)
Identify quadrant of an angle greater than 2π (1 problem)

Level 4

Solve the area of a windshield story problem (1 problem)

Chapter 4 (Section 2) Trigonometry

Level 2

Identify 6 trig functions (2 problems)
Evaluate angle greater than 2π and # of rotations (2 problems)

Level 3

Evaluate trig functions given cot or tan and sin or cos (1 problem)
Story problem with given angle and length (1 problem)

Level 4

Standing between 2 building find their heights (1 problem)

Some Chapter 1 and Chapter 2 Examples of Level 2 and/or Level 3

Find Domain and Range: $f(x) = x^2 - 4$

Given $f(x) = 4x - 1 \; and \; g(x) = 7x + 4$

Evaluate $f\big(g(x)\big), \; f(x)g(x), and \; find \; inverse \; of \; g(x)$

Find Vertex, end behavior and x-intercept(s) of:

$f(x) = x^2 + 2x - 8$

Solve

$-3x^2 - 30x = 27, \;\; 81x^2 = 144$

Simplify

$\sqrt{-81}, \qquad (-8i - 7) + (5i + 2)$

Some Chapter 1 and Chapter 2 Solutions

$f(x) = x^2 - 4$ **Domain: All Real #** **Range: All Real # greater or equal to -4**

Given $f(x) = 4x - 1$ $g(x) = 7x + 4$

$f(g(x)) = \mathbf{28x + 15}$, $f(x)g(x) = \mathbf{28x^2 + 9x - 4}$, $g'(x) = \mathbf{(x - 4)/7}$

Find Vertex, end behavior and intercept(s) of:

$\boldsymbol{f(x) = x^2 + 2x - 8}$ Ver: **(-1, -9)** End Be: **up on left, up on right** Roots: **x = -4, 2** Y-Inter: **(0,-8)**

Solve

$-3x^2 - 30x = 27 \rightarrow \mathbf{x = -9, -1}$ $81x^2 = 144 \rightarrow \mathbf{x = -1.33, 1.33}$

Simplify

$\sqrt{-81}$, $\mathbf{9i \ and \ -9i}$ $(-8i - 7) + (5i + 2) = \mathbf{-3i - 5}$

Some Chapter 3
Examples of Level 2 and/or Level 3

Rewrite $5^2 = 25$

Rewrite $log_{16}4 = 0.5$

Evaluate $log_5 420$

Evaluate $\ln e^{2x}$

Solve $9 + 4^{2x+7} = 169$

Solve $log_9(4x - 1) = 1.25$

Some Chapter 3 Solutions

Rewrite $5^2 = 25$	$\boldsymbol{log_5 25 = 2}$
Rewrite $log_{16} 4 = 0.5$	$\boldsymbol{16^{0.5} = 4}$
Evaluate $log_5 420$	**3.753**
Evaluate $\ln e^{2x}$	**2x**
Solve $9 + 4^{2x+7} = 169$	$\boldsymbol{x = -1.6498}$
Solve $log_9(4x - 1) = 1.25$	$\boldsymbol{x = 4.147}$

Some Chapter 4
Examples of Level 2 and/or Level 3

Change 189° to radian, Change $\frac{11\pi}{3}$ radians to degrees.

Identify a positive and negative coterminal angle of 80° and $\frac{4\pi}{3}$

Find arc of circle with angle of $24°$ and radius of 7 inches (then find its area)

What quadrant is $\frac{81\pi}{5}\ in$? How many full rotations?

Evaluate 6 trig functions for $\theta = \frac{\pi}{3}$

$\text{Given, } \tan\theta = \frac{3}{4}\ and\ \cos\theta < 0$ find 6 trig functions

If a given angle of a right triangle is 24° and the hypotenuse is 17 inches find the missing side(s) and angle(s).

Some Chapter 4 Solutions

Change $189° = \frac{21\pi}{20}$, $\frac{11\pi}{3} = 660°$

Identify a + and - coterminal angle of 80 → **440 ° and - 280 °** $\frac{4\pi}{3} \rightarrow \frac{10\pi}{3}$ $and \frac{-2\pi}{3}$

Find arc of circle with angle of $24°$ and radius of 7 inches (then find its area) **A =** $\frac{49\pi}{15} = 10.26$

What quadrant is $\frac{81\pi}{5}$ in? How many full rotations? **1st Quadrant and 8 full rotations**

Evaluate 6 trig functions for $\theta = \frac{\pi}{3}$ → $\cos\frac{\pi}{3} = \frac{1}{2}, \sec\frac{\pi}{3} = 2, \sin\frac{\pi}{3} = \frac{\sqrt{3}}{2}, \csc\frac{\pi}{3} = \frac{2\sqrt{3}}{3}, \tan\frac{\pi}{3} = \sqrt{3}, \cot\frac{\pi}{3} = \frac{\sqrt{3}}{3}$

Given, $\tan\theta = \frac{3}{4}$ and $\cos\theta < 0$ find 6 trig functions

$\cos\theta = \frac{-4}{5}, \sec\theta = \frac{5}{-4}, \sin\theta = \frac{-3}{5}, \csc\theta = \frac{5}{-3}, \tan\theta = \frac{3}{4}, \cot\theta = \frac{4}{3}$

If a given angle of a right triangle is 24° and the hypotenuse is 17 inches find the missing side(s) and angle(s).

Angles: 24°, 90°, **66°** Hypo: **17 inch**, Side opposite 24°: **6.91 inch**, Side opposite 66°: **15.53 inch**

Review Assignment(s)

Chapter 1: Read page 114 – 115

Chapter 2: Read page 204 – 205

Chapter 3: Read page 268 – 269

Chapter 4: Read page 362 – 363