

Starter Graph Piece-Wise

1.7 Modeling

HW #1-4, 1-4, 7,8,12,21,23,25,31,33, 39 Extra Credit pg 160-161

Sep 16-11:37 AM

Sketch the graph of each function. Starter #7

1) $w(x) = \begin{cases} 2^x, & x < -1 \\ 4-x^3, & x \geq -1 \end{cases}$

2) $f(x) = \begin{cases} \frac{1}{x}, & x \leq -2 \\ x^2-3, & -2 < x \leq 3 \\ \frac{1}{x}+1, & x > 3 \end{cases}$

3) $f(x) = \begin{cases} \frac{1}{x}-1, & x < -3 \\ 3, & -3 \leq x \leq 1 \\ \sqrt{x-3}, & x > 1 \end{cases}$

Handwritten notes for 2) $f(x) = \begin{cases} \frac{1}{x}, & x \leq -2 \\ x^2-3, & -2 < x \leq 3 \\ \frac{1}{x}+1, & x > 3 \end{cases}$

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Write the area A of a circle

(a) radius $A = \pi r^2$

(b) diameter $r = \frac{d}{2}$ $A = \pi \left(\frac{d}{2}\right)^2$

(c) circumference $C = 2\pi r$ $r = \frac{C}{2\pi}$

$A = \pi \left(\frac{C}{2\pi}\right)^2 = \pi \frac{C^2}{4\pi^2} = \frac{C^2}{4\pi}$

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$x = h$

$(8-2x) = w$

$(15-2x) = l$

$V = w \cdot l \cdot h$

$V = x(8-2x)(15-2x)$

$D: [0, 4]$

$8-2x=0 \Rightarrow x=4$

$2x=8 \Rightarrow x=4$

$x=0$

Max $V(5/3, 90.74)$

$V = 90.74 \text{ in}^3$

each square has sides of $5/3$

Sep 16-1:45 PM

$$\frac{x}{10\%} + \frac{100-x}{45\%} = \frac{100}{25\%}$$

$$.1x + .45(100-x) = 25$$

$$.1x + 45 - .45x = 25$$

$$-.35x + 45 = 25 \quad | 100 - 57.14 = 42.86$$

$$-.35x = -20$$

$$x = \frac{-20}{-.35} \quad x = 57.14$$

57.14 gallons of 10%

42.86 gallons of 45%

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