Test 1 Review

Tuesday, September 18, 2018 1:58 PM

#1 Plug the ordered pair into the equation

$$4x - 3y = 28$$

$x \to 4$, $y \to 4$

$$4\cdot(4) - 3\cdot(4) \stackrel{?}{=} 28$$

$$4 \neq 28$$

Answer: NO

#2 $f(2) = 4\cdot(2)^2 + 5(2) - 5$

$$= \boxed{21}$$

#3 Domain = Projection of Graph onto the x-axis

$$= \boxed{[-4, 4]}$$

#4 $f(x) = \frac{7}{2-x}$. Find Domain?

Step 1: Set Denominator = 0 and Solve for x.

$$2 - x = 0 \rightarrow x = 2$$

Step 2: Domain = All real #s except for $x = 2$

$$= (-\infty, 2) \cup (2, \infty)$$

$$= \boxed{\{x \mid x \neq 2\}} \rightarrow \text{choice B.}$$

#5 $\left(\frac{f}{g}\right)(3) = \frac{f(3)}{g(3)}$

From the graphs, $f(3) = 1$ and $g(3) = -1$.

So, $\frac{f(3)}{g(3)} = \frac{1}{-1} = \boxed{-1}$

#6 $(f \cdot g)(x) = f(x) \cdot g(x) = (5x-6)\cdot(6x-9)$

$$= \boxed{30x^2 - 81x + 54}$$

#7 $$\text{Slope} = \frac{-17-(-13)}{2-7} = \frac{-17+13}{-5} = \frac{-4}{-5} = \boxed{\frac{4}{5}}$$

#8 $$\text{Slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{\text{Rise}}{\text{Run}} = \frac{-10000}{5} = \boxed{-2000}$$

#9 $(-6,0)$ and $(-9,8)$

$$\text{Slope} = \frac{8-0}{-9-(-6)} = \frac{8}{-9+6} = \frac{8}{-3} = -\frac{8}{3}$$

$$y-0 = -\frac{8}{3}(x+6)$$

$$y = -\frac{8}{3}x - \frac{48}{3} = -\frac{8}{3}x - 16$$

#10 $-9x - 2y = 39 \rightarrow -2y = 9x + 39$

$\rightarrow y = \boxed{-\frac{9}{2}}x - \frac{39}{2} \rightarrow$ Slope $= -\frac{9}{2}$

Since the line passing through $(-3,-2)$ is parallel to this, its slope is $-\frac{9}{2}$.

Point-Slope Form:

$$y - (-2) = -\frac{9}{2}(x - (-3))$$

Slope-intercept form:

$$y = -\frac{9}{2}(x+3) - 2$$

$$y = -\frac{9}{2}x - \frac{27}{2} - 2$$

$$\boxed{y = -\frac{9}{2}x - \frac{31}{2}}$$

#11 $3x - 2y = 1 \rightarrow -2y = -3x + 1$

$\rightarrow y = \frac{3}{2}x - \frac{1}{2} \rightarrow$ Slope $= \frac{3}{2}$

$2x + 3y = 1 \rightarrow 3y = -2x + 1$

$\rightarrow y = -\frac{2}{3}x + \frac{1}{3} \rightarrow$ Slope $= -\frac{2}{3}$

} They are perpendicular

#12 2 data points

x	y	
1.35	4820	$\rightarrow (1.35, 4820)$
1.40	3961	$\rightarrow (1.40, 3961)$

Find a linear function $y = mx + b$ that fits the data.

Step 1: Find Slope. $m = \frac{3961 - 4820}{1.40 - 1.35}$

$m = -17180$

Step 2: Point-Slope Form

$$y - 4820 = -17180(x - 1.35)$$

Step 3: Slope-Intercept Form

$$y = -17180x + 23193 + 4820$$

$$y = -17180x + 28013$$

At price of \$1.23,

$$y = (-17180) \cdot (1.23) + 28013$$

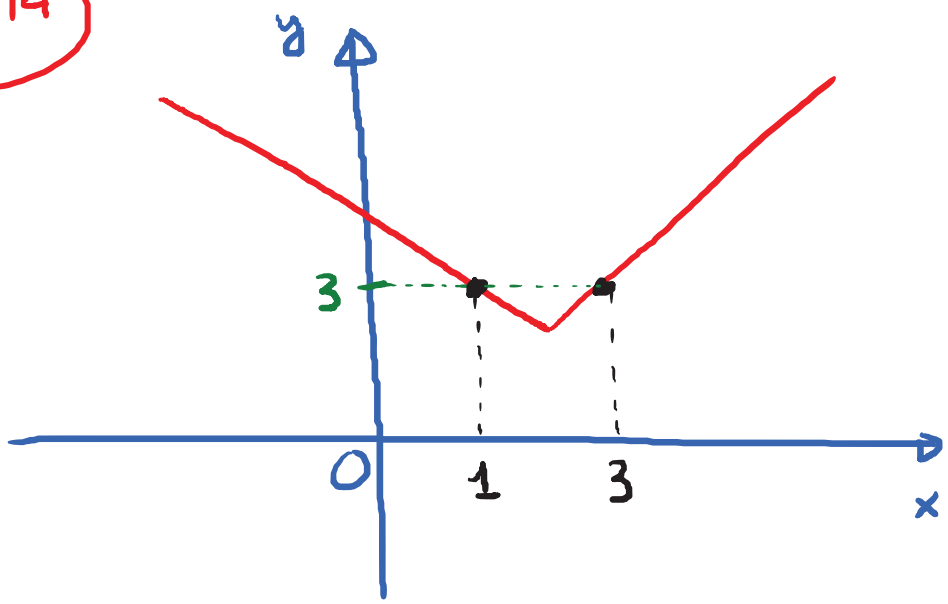
$$\boxed{y = 6881.6}$$

Short Answer Part:

#13 $P(33) = 1 + \frac{33}{33} = \boxed{2}$ (atm)

$P(33)$: pressure at the depth of 33 ft

#14



Answer:

$x = 1$ and $x = 3$.

#15 $f(x) = \dfrac{2}{x-12}$; $g(x) = 7x - 5$

Step 1: Find D_f.

$D_f = (-\infty, 12) \cup (12, \infty)$

Step 2: Find D_g.

$D_g = (-\infty, \infty)$

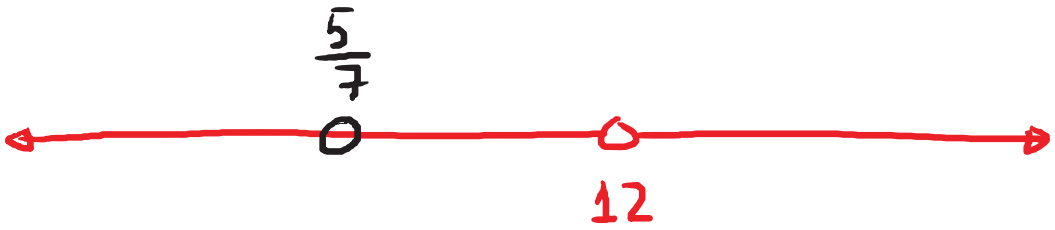
Step 3: Find $D_f \cap D_g$.

$D_f \cap D_g = (-\infty, 12) \cup (12, \infty)$

Step 4: Find x such that $g(x) = 0$

$7x - 5 = 0 \longleftrightarrow x = \frac{5}{7}$ → exclude

Step 5: Conclusion:



Interval Notation: $(-\infty, \frac{5}{7}) \cup (\frac{5}{7}, 12) \cup (12, \infty)$

Set Builder Notation: $\{x \mid x \neq \frac{5}{7} \text{ and } x \neq 12\}$

#16 $6x - 8y = 8 \longleftrightarrow -8y = -6x + 8$

$\longleftrightarrow y = \frac{3}{4}x - 1$.

Slope $= \frac{3}{4}$; y-intercept: $(0, -1)$

#17 $y = -\frac{8}{5}x + \frac{39}{5}$

#18 $7x - 8y = -30 \rightarrow -8y = -7x - 30$

$\rightarrow y = \frac{7}{8}x + \frac{15}{4} \rightarrow$ Slope $= \frac{7}{8}$

Slope of line passing through $(6,-9)$ and perpendicular to this is $-\frac{8}{7}$.

Point-Slope Form: $y - (-9) = -\frac{8}{7}(x-6)$

$y + 9 = -\frac{8}{7}(x-6)$

Slope-intercept form: $y = -\frac{8}{7}x + \frac{48}{7} - 9$

$$\boxed{y = -\frac{8}{7}x - \frac{15}{7}}$$

#19 $f(x) = 6x^2 + 3x$

$$f(2a) = 6(2a)^2 + 3(2a)$$

$$= 6(4a^2) + 6a$$

$$\boxed{f(2a) = 24a^2 + 6a}$$

#20 Point - Slope Form:

$$y - (-4) = -\frac{4}{5}\cdot(x - 7)$$

$$y + 4 = -\frac{4}{5}(x - 7)$$

Slope - Intercept Form:

$$y = -\frac{4}{5}x + \frac{28}{5} - 4$$

$$\boxed{y = -\frac{4}{5}x + \frac{8}{5}}$$