

## CHAP 1 REVIEW (F2017)

① GIVEN THE EXPRESSION  $3x^2 + 2x + x - 1$ , HOW MANY TERMS DOES IT HAVE?

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② A REPAIR COSTS A FLAT FEE OF \$90 AND AN HOURLY CHARGE OF \$30/HOUR. SET UP A FUNCTION  $C(h)$  WHERE  $C$  IS COST IN \$ AND  $h$  IS HOW LONG REPAIR TOOK IN HOURS.

$$C(h) = 90 + 30h \quad \text{OR} \quad C(h) = 30h + 90$$

③ FOR NUMBER ② ABOVE, ASSUMING THE REPAIR TAKES BETWEEN 1 AND 10 HOURS,

(A) WHAT IS THE DOMAIN?  $\{1, 2, 3, \dots, 10\}$

(B) WHAT IS THE RANGE?  $\{120, 150, \dots, 390\}$

(C) WHAT DOES  $C(3)$  REPRESENT?  
THE COST OF A REPAIR TAKING 3 HRS.

(D) CALCULATE  $C(3)$ . SHOW WORK.

$$C(3) = 90 + 30(3) = 90 + 90 = \$180$$

(E) IF YOU WERE CHARGED \$210.00, HOW MANY HOURS DID THE REPAIR TAKE? SHOW WORK.

$$\begin{array}{r} 210 = 90 + 30h \\ -90 \quad -90 \\ \hline \end{array}$$

$$\begin{array}{r} 120 = 30h \\ \underline{30} \quad \underline{30} \end{array}$$

$$h = 4 \text{ HRS}$$

4) COMPLETE THE TABLE USING "RULE OF 4."

| <p><u>SYMBOLIC:</u></p> $y = 2 - 3x$ | <p><u>VERBAL:</u></p> <p>2 MINUS 3 TIMES A NUMBER X.</p>   |   |   |   |   |   |    |   |    |
|--------------------------------------|--|---|---|---|---|---|----|---|----|
| <p><u>GRAPHICAL:</u></p>             | <p><u>NUMERICAL:</u></p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>1</td> <td>-1</td> </tr> <tr> <td>2</td> <td>-4</td> </tr> </tbody> </table> <p>etc.</p> | x | y | 0 | 2 | 1 | -1 | 2 | -4 |
| x                                    | y  |   |   |   |   |   |    |   |    |
| 0                                    | 2  |   |   |   |   |   |    |   |    |
| 1                                    | -1   |   |   |   |   |   |    |   |    |
| 2                                    | -4   |   |   |   |   |   |    |   |    |

5) SOLVE EACH OF THE FOLLOWING. SHOW WORK.

A)  $2x + 5 = 13$   
 $\quad -5 \quad -5$

$$\frac{2x}{2} = \frac{8}{2}$$

$x = 4$

B)  $\frac{15}{x} + 2 = 5$   
 $\quad -2 \quad -2$

$$\frac{15}{x} = 3 \cdot x$$

$$\frac{15}{3} = \frac{3x}{3} \quad x = 5$$

C)  $4(x+1) = 40$

$$4x + 4 = 40$$

$$\quad -4 \quad -4$$

$$\frac{4x}{4} = \frac{36}{4} \quad x = 9$$

D)  $2 + 5x = 3x - 6$   
 $\quad -3x \quad -3x$

$$2 + 2x = -6$$

$$\quad -2 \quad -2$$

$$\frac{2x}{2} = \frac{-8}{2} \quad x = -4$$

E)  $\frac{7}{3}x - 8 = 111$

$$3\left(\frac{7}{3}x - 8 = 111\right)$$

$$7x - 24 = 333$$

$$\quad +24 \quad +24$$

$$7x = 357$$

$$x = 51$$

F)  $\frac{1}{5}(10 - 20x) = -14$

$$2 - 4x = -14$$

$$\quad -2 \quad -2$$

$$-4x = -16$$

$$\quad -4 \quad -4$$

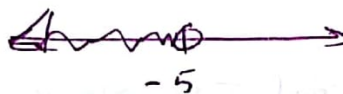
$x = 4$

6 SOLVE + GRAPH EACH INEQUALITY.

(A)  $-11x - 13 > 42$   
 $+13 +13$

$$\frac{-11x > 55}{-11 < -11}$$

$x < -5$



(B)  $9x - 5(x-5) \leq 4(x-3)$

$$9x - 5x + 25 \leq 4x - 12$$

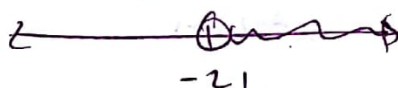
$$\begin{array}{r} 4x + 25 \leq 4x - 12 \\ -4x \quad -4x \\ \hline 25 \leq -12 \end{array}$$

NO SOLUTION

(C)  $4x - 17 < 6x + 25$   
 $-4x \quad -4x$

$$\frac{-17 < 2x + 25}{-25 \quad -25}$$

$$\frac{-42 < 2x}{\frac{-42}{2} < \frac{2x}{2}} \quad -21 < x$$

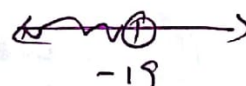


(D)  $\frac{w+3}{2} < -8$

$$2 \left( \frac{w+3}{2} < -8 \right)$$

$$\frac{w+3 < -16}{-3 \quad -3}$$

$w < -19$



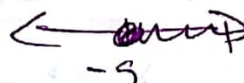
(E)  $5x - 3(x-6) \geq 0$

$$5x - 3x + 18 \geq 0$$

$$\frac{2x + 18 \geq 0}{-18 \quad -18}$$

$$\frac{2x \geq -18}{\frac{2x}{2} \geq \frac{-18}{2}}$$

$x \geq -9$



- 7) MARIO MAKES A 90 ON HIS FIRST TEST AND AN 88 ON HIS SECOND TEST. WHAT MUST HE MAKE ON HIS THIRD TEST TO HAVE AN AVERAGE GREATER THAN 91? SHOW WORK.

$x = 3^{\text{rd}} \text{ TEST GRADE}$

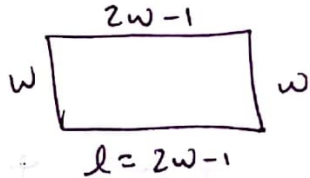
$$\frac{90 + 88 + x}{3} > 91$$

$$90 + 88 + x = 273$$

$$178 + x = 273$$

$$x > 95$$

- 8) THE LENGTH OF A RECTANGLE IS ONE INCH LESS THAN TWICE THE WIDTH. WHAT IS THE MAXIMUM WIDTH WHEN THE PERIMETER OF THE RECTANGLE IS NO MORE THAN 70 INCHES? SHOW WORK.



$l = 2w - 1$

$$P = (2w - 1) + w + (2w - 1) + w$$

$$P = 6w - 2$$

$$6w - 2 \leq 70 \quad 6w \leq 72 \quad w \leq 12$$

- 9) (A) SOLVE  $S = 4\pi r^2$  FOR  $r$ . SHOW WORK.

$$\frac{S}{4\pi} = r^2 \quad \sqrt{r^2} = \sqrt{\frac{S}{4\pi}} \quad r = \sqrt{\frac{S}{4\pi}}$$

- (B) SOLVE  $xy + w = 9$  FOR  $y$ . SHOW WORK

$$\frac{xy}{x} = \frac{9-w}{x} \rightarrow y = \frac{9-w}{x}$$

- (C) SOLVE  $x^3 + 8 = y$  FOR  $x$ . SHOW WORK.

$$x^3 = y - 8$$

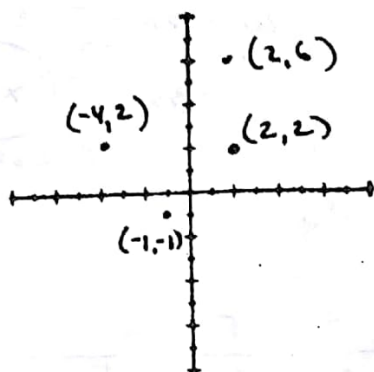
$$\sqrt[3]{x^3} = \sqrt[3]{y-8}$$

$$x = \sqrt[3]{y-8}$$



10 FOR EACH OF THE FOLLOWING, GIVE:  
 (A) DOMAIN, (B) RANGE, (C) FUNCTION?, (D) DISCRETE/CONT?

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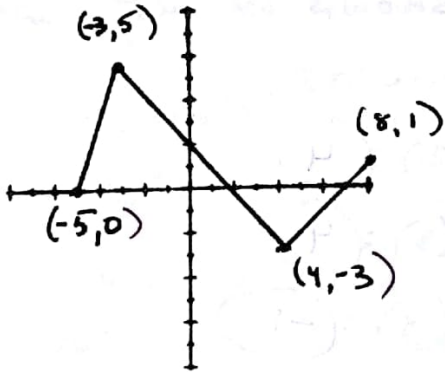


- (A) D:  $\{-4, -1, 2\}$
- (B) R:  $\{2, -1, 6\}$
- (C) FUNCTION? NO,  $x=2$  REPEATS
- (D) D/C? DISCRETE

2  $\{(3, -5), (7, 8), (6, -5), (4, 4)\}$

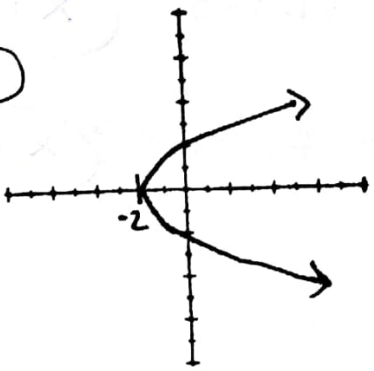
- (A) D:  $\{3, 7, 6, 4\}$
- (B) R:  $\{-5, 8, 4\}$
- (C) FUNCTION? YES.
- (D) D/C? DISCRETE.

3



- (A) D:  $-5 \leq x \leq 8$
- (B) R:  $-3 \leq y \leq 5$
- (C) FUNCTION? YES, VLT ✓
- (D) D/C? CONTINUOUS.

4



- (A) D:  $x \geq -2$
- (B) R:  $\mathbb{R}$
- (C) FUNCTION? NO, VLT X
- (D) D/C? CONTINUOUS.

11) GIVEN  $f(x) = 3x + 5$

(A) FIND  $f(0)$   $3(0) + 5 = 5$  (C) FIND  $f(-3)$   $3(-3) + 5 = -4$

(B) FIND  $f(-1)$   $3(-1) + 5 = 2$  (D) WHEN IS  $f(x) = 10$ ?

$$\begin{array}{r} 10 = 3x + 5 \\ -5 \quad -5 \\ \hline 5 = 3x \end{array} \quad x = \frac{5}{3}$$

12) GIVEN THE TABLE OF VALUES FOR TIME IN SECONDS AND HEIGHT IN FEET OF AN OBJECT.

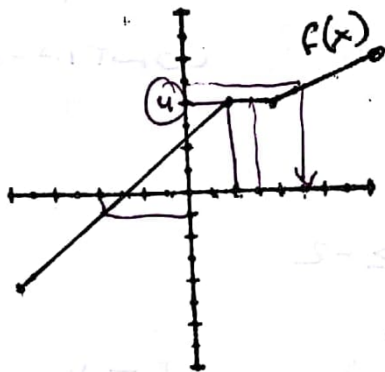
| TIME (SEC) | 0 | 1  | 2  | 3  | 4  | 5  | 6  |
|------------|---|----|----|----|----|----|----|
| HT (FT)    | 5 | 10 | 15 | 20 | 25 | 30 | 35 |

(A) WHAT DOES  $H(2)$  MEAN? HEIGHT OF OBJECT @ 2 SEC.

(B) WHAT IS  $H(2)$ ?  $H(2) = 15 \text{ ft}$

(C) WHEN WILL THE HEIGHT BE 22 FT?  
BETWEEN 3 AND 4 SECONDS.

13) THE FUNCTION  $y = f(x)$  IS SHOWN ON THE GRAPH BELOW.



(A) EVALUATE:

$$f(2) = 4$$

$$f(3) = 4$$

$$f(-4) = -1$$

(B) WHEN IS  $f(x) = 0$ ?  $x = -3$

(C) WHEN IS  $f(x) = 5$ ?  $x = 5$