August 29, 2023

Chapter 1 Review

N = Natural 1, 2, 3, 4...

W = Whole 0, 1, 2, 3, 4...

Z = Integers ...-3, -2, -1, 0, 1, 2, 3...

Q = Rational $\frac{m}{n}$ $\frac{4}{1}, \frac{2}{3}, \frac{-27}{2}, 3.764, 4.1\overline{6}$

terminating or repeating decimals

I = Irrational non-terminating, non-repeating decimals

$\pi, \sqrt{2}, \sqrt{71}, e$

$\mathbb{R}$ = Real = all rational + irrational #'s

6) a) $-\frac{23}{7}$ $\mathbb{Q}, \mathbb{R}$

$\sqrt{49} = 7$ $\mathbb{N}, \mathbb{W}, \mathbb{Z}, \mathbb{Q}, \mathbb{R}$

Solve for x by removing the denom.

$$26\left[\frac{2}{3}x + 4 = \frac{5}{2}(x-1) + 2\right]$$

$$9x + 24 = 15(x-1) + 12$$

$$9x + 24 = 15x - 15 + 12$$

$$9x + 24 = 15x - 3$$

$$27 = 11x$$

$$\frac{27}{11} = x$$

Solve for l.

8/ $A = 2\pi rl + \pi r^2$

$$\frac{A - \pi r^2}{2\pi r} = \frac{2\pi rl}{2\pi r}$$

$$\begin{bmatrix} 2 & 3 & -4 \\ 1 & 5 & 6 \end{bmatrix} - 2\begin{bmatrix} 6 & -4 & 3 \\ 5 & -7 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 3 & -4 \\ 1 & 5 & 6 \end{bmatrix} + \begin{bmatrix} -12 & 8 & -6 \\ -10 & 14 & -2 \end{bmatrix}$$

$$= \begin{bmatrix} -10 & 11 & -10 \\ -9 & 19 & 4 \end{bmatrix}$$

$$\begin{bmatrix} 3 & -2 & 1 & 6 \\ 5 & -4 & 2 & -5 \end{bmatrix} \cdot \begin{bmatrix} 6 & 7 \\ -1 & -3 \\ 3 & 0 \\ 5 & 6 \end{bmatrix} = \begin{bmatrix} 18+2+3+30 & 21+6+0+36 \\ 30+4+6-75 & 35+12+0-30 \end{bmatrix}$$

2×4 $\quad$ 4×2 $\quad$ 2×2

$$= \begin{bmatrix} 53 & 63 \\ 15 & 17 \end{bmatrix}$$

#12. By calculator.

$$\begin{bmatrix} 1 & 3 \\ 4 & 10 \\ 11 & 56 \\ 47 & 22 \end{bmatrix} \cdot \begin{bmatrix} 42 \\ 35 \end{bmatrix}$$

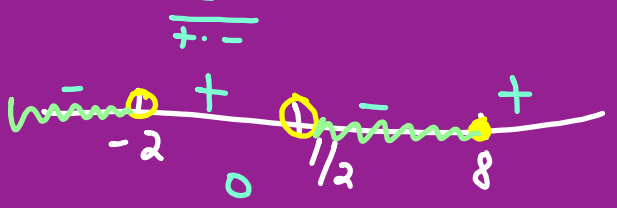
#13-14 Solve for x just like it is an = sign.

#15-16 1) Isolate abs value.
2) Write & solve 2 equations

#17-19 Multiplying/Dividing variable = Test Points!

$$\frac{x-8}{(x+2)(2x-1)} \leq 0$$

negative solutions!



$x < -2$ OR $\frac{1}{2} < x \leq 8$

20-22 And + Or Problems

$$2x+3 \leq x-5 \leq 5-8x$$

$2x+3 \leq x-5$ and $x-5 \leq 5-8x$

$x \leq -8$ $\quad$ $9x \leq 10$

$x \leq 10/9$

And = must overlap

$\boxed{x \leq -8}$

OR

Anything shaded is a solution

23-27

$$-3|x+4|-7 \le -22$$
$$+7 \quad +7$$
$$-3|x+4| \le -15$$
$$\frac{-3|x+4|}{-3} \le \frac{-15}{-3}$$

Switch

$$|x+4| \ge 5$$

Switch both!

OR

$$x+4 \ge 5 \qquad x+4 \le -5$$
$$-4 \quad -4 \qquad -4 \quad -4$$
$$x \ge 1 \qquad x \le -9$$

OR – does not have to overlap

$x \le -9$ OR $x \ge 1$

$|x+2| = -3$
No sol

$|x+2| \le -3$
No sol.

$|x+2| \ge -3$
$\mathbb{R}$