Quiz 1

1. The set of all non-terminating, non-repeating decimals is called
irrationals
_____

2. The set of counting numbers is called
natural #'s ℕ
_____

3. The set of all terminating or repeating decimals is called
rationals ℚ
_____

4. The set containing no elements is called
empty/null set
_____

5. The set of all positive and negative whole numbers is called
integers ℤ
_____

$A = \{1, 2, 3, 4, 5\}$, $B = \{1, 3, 5\}$, $C = \{2, 4, 6\}$

6. $A \cap C =$ $\{2, 4\}$

7. $A \cup B =$ A

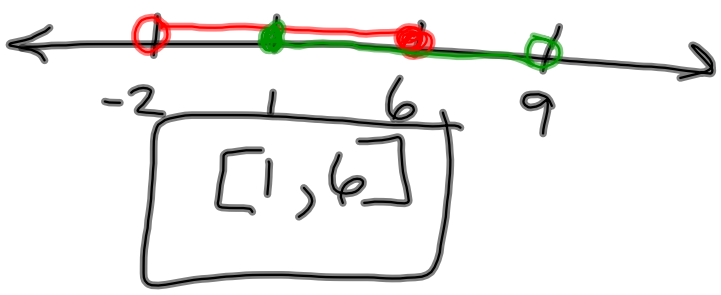
8. $B \cap C =$ $\emptyset$

9. $A \cap B =$ B

10. $A \cup C =$ $\{1, 2, 3, 4, 5, 6\}$

11. State the intersection in interval notation:

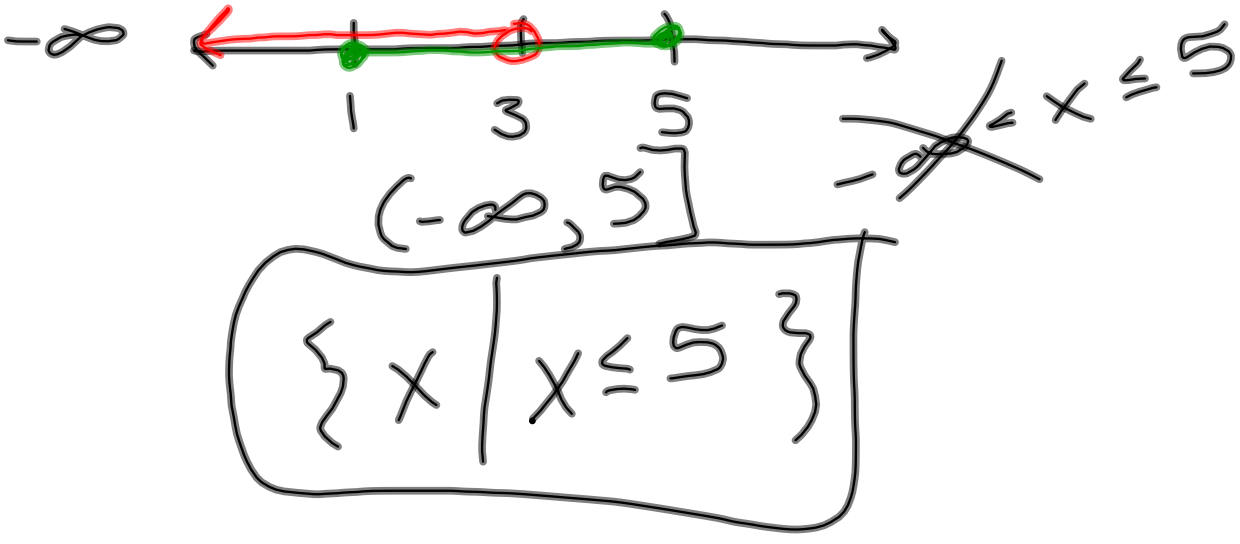
$$\{x \mid -2 < x \leq 6\} \cap \{x \mid 1 \leq x < 9\}$$



[a,b]
(a,b)
[a,b)
(a,b]

12. State the union in set-builder notation:

$$(-\infty, 3) \cup [1,5]$$



1.4
16. larger # = x
smaller # = 33 − x

x + y = 33
y = 33 − x

the difference between (six more than twice the smaller #) and (three more than the larger #)

$(6+2(33-x))-(3+x)$

$6+66-2x-3-x$

$\boxed{69-3x}$

1.3 $a(b+c) = ab + ac$

101.

$2x - 4[x - 4(y - 2(5y+3))]$

$2x - 4(x - 4(y - 10y - 6))$

$2x - 4(x - 4(-9y - 6))$

$2x - 4(x + 36y + 24)$

$2x - 4x - 144y - 96$

$\boxed{-2x - 144y = 96}$

2.1 Equations in One Variable

identity true for any/all instances of the variable

$x+2=x+2$ $0=0$

conditional equation true for only certain instances of the variable

$x+3=1$ $x=-2$ $x^2=4$, $x=\pm 2$

contradiction never true for any instance of the variable

$x+1=x+2$ $1=2$

Solution is the empty set

2.1

67. $8\left(\frac{1}{2}x - \frac{3}{4}x + \frac{5}{8}\right) = \left(\frac{3}{2}x - \frac{5}{2}\right) \cdot 8$

$\frac{8}{1} \cdot \frac{1}{2}x - \frac{8}{1} \cdot \frac{3}{4}x + \frac{8}{1} \cdot \frac{5}{8} = \frac{8}{1} \cdot \frac{3}{2}x - \frac{5}{2} \cdot \frac{8}{1}$

$4x - 6x + 5 = 12x - 20$

$-2x + 5 = 12x - 20$

$5 + 20 = 12x + 2x$

$\frac{25}{14} = \frac{14x}{14}$

$x = \frac{25}{14}$

70.

$$\frac{36}{1}\left(\frac{x-2}{4}-\frac{x+5}{6}\right)=\left(\frac{5x-2}{9}\right)\cdot\frac{36}{1}$$

$$\frac{9}{\cancel{36}}\cdot\frac{(x-2)}{\cancel{4}}-\frac{\cancel{6}}{\cancel{36}}\cdot\frac{(x+5)}{\cancel{6}}=\frac{(5x-2)}{\cancel{9}}\cdot\frac{\cancel{36}^{4}}{1}$$

$$9(x-2)-6(x+5)=(5x-2)4$$

$$9x-18-6x-30=20x-8$$

$$3x-48=20x-8$$

$$-48+8=20x-3x$$

$$-40=17x$$

$$\boxed{-\frac{40}{17}=x}$$

92. $\dfrac{6}{\left(\frac{7}{a}\right)} = -18$

$\dfrac{6}{1} \cdot \dfrac{a}{7} = -18$

$\dfrac{7}{1}\left(\dfrac{6a}{7}\right) = \left(\dfrac{-18}{1}\right)\cdot\dfrac{7}{6}$ (3)

$a = -21$

$$\frac{96}{3} \cdot \left(\frac{4(x-5)-(x+1)}{3}\right) = (x-7) \cdot 3$$

$$4(x-5)-(x+1) = 3x-21$$

$$4x-20-x-1 = 3x-21$$

$$3x-21 = 3x-21$$

Solution: ~~this is an identity~~ all real #'s $\mathbb{R}$ $(-\infty, \infty)$

2.1 #16-77; 90-99 30 min on Khan Academy