

S-AZ Algebra 2 6/15 Session 2

Find the opposite reciprocal

a.) $8 \rightarrow -8 \rightarrow \boxed{-\frac{1}{8}}$

b.) $-\frac{4}{3} \rightarrow \frac{4}{3} \rightarrow \boxed{\frac{3}{4}}$

Determine whether each is rational. If so, why?

1.) 9 (R) counting, whole, integer

7.) $\sqrt{36}$ (R) perfect square

2.) 0 (R) whole, integer

8.) $0.767676\dots$ (R) repeating

3.) $0.2222\dots$ (R) repeating

9.) $0.1238\dots$ (I)

4.) 0.453453 (R) terminal

10.) 0.5111 (R) terminal

5.) -7 (R) integer

11.) π (I)

6.) $\sqrt{48}$ (I) not a perfect square

12.) $\frac{3}{5}$ (R) fraction

Commutative Property

$$8 + 3 = 3 + 8$$

$$11 = 11$$

$$8 * 3 = 3 * 8$$

$$24 = 24$$

Add/Mult order does not matter

Associative Property

$$(3+4)+5 = 3+(4+5)$$

$$7+5 = 3+9$$
$$12 = 12$$

$$(3*4)*5 = 3*(4*5)$$

Add/Mult

you can shift parenthesis

Identity Property

Add $3 + 0 = 3$

Mult $3 * 1 = 3$

$$\boxed{a + 0 = a}$$

$$a * 1 = a$$

$$x + 4 = 5$$

$-4 \quad -4$

$$x + 4 - 4 = 5 - 4$$

$$\boxed{x + 0} = 1$$

$$x = 1$$

Inverse Property

Add $4 + (-4) = 0$

$$a + (-a) = 0$$

Add opposite = 0

Mult $4 * (\frac{1}{4}) = 1$

$$a * \frac{1}{a} = 1$$

Multiply by inverse reciprocal = 1

$$a \neq 0$$

Distributive Property

Needham Slap!

$$4(5+3) = 4(5) + 4(3)$$

$$3(a+b)$$

$$4(8) = 20 + 12$$

$$3a + 3b$$

$$32 = 32$$

1.2 Algebraic Expressions

$$(4x+1) + 2x$$
$$\downarrow \qquad \qquad \downarrow$$
$$(4(3)+1) + 2(3)$$

$x=3$ substitute
input $\rightarrow 3$ output $\rightarrow 19$

$$12+1+6$$
$$13+6 = \boxed{19}$$

$$6p^2 - (3p^2 + 2q^2)$$
$$\downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow$$
$$6(1)^2 - (3(1)^2 + 2(5)^2)$$

inputs
 $p=1$ $q=5$

Follow
PEMDAS

$$6(1) - (3(1) + 2(25))$$

$$\downarrow$$
$$6 - (3 + 50)$$

$$6 - 53 = \boxed{-47}$$

output

$$2(m-n^2) - 6(n^2+3m)$$

$$\boxed{2m} \quad \boxed{-2n^2} \quad \boxed{-6n^2} \quad \boxed{-18m}$$

$$2m - 18m \quad -2n^2 - 6n^2$$

$$\boxed{-16m - 8n^2}$$

"simplify"
Distribute

combine like terms

$$\frac{F}{RT} = \frac{ART}{RT}$$

$$A = \frac{F}{RT}$$

$$\frac{PV}{nT} = \frac{nRT}{nT}$$

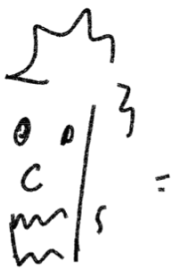
$$R = \frac{PV}{nT}$$

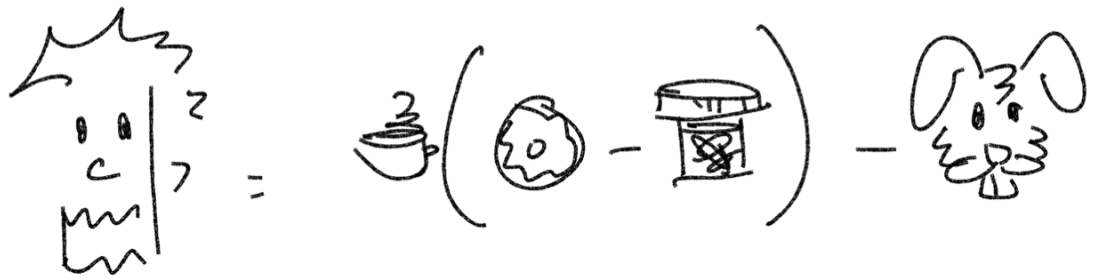
$$\frac{A}{\pi} = \frac{\pi r^2}{\pi}$$

$$r = \pm \sqrt{\frac{A}{\pi}}$$

↑
P
E
MD
AS

$$\sqrt{\frac{A}{\pi}} = r$$





$$3m - n = 2m + n \quad m =$$

$$+n \quad +n$$

$$3m = 2m + 2n$$

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

$$\boxed{m = 2n}$$

$$2(\boxed{u} + 3v) = w - 5\boxed{u}$$

$$2u + 6v = w - 5u$$

$$+5u \quad +5u$$

$$7u + 6v = w$$

$$-6v \quad -6v$$

$$\frac{7u}{7} = \frac{w - 6v}{7}$$

solve for u

$$u =$$

$$\boxed{u = \frac{w - 6v}{7}}$$

$$ax + b = cx + d \quad x =$$

$$\quad \quad \quad -cx \quad -cx$$

$$ax - cx + b = d$$

$$\quad \quad \quad -b \quad -b$$

$$x = \frac{d-b}{a-c}$$

$$ax - cx = d - b$$

$$\downarrow$$

$$\frac{x(a-c)}{a-c} = \frac{d-b}{a-c}$$

$$\frac{2}{3}f + \frac{5}{12}g = 3 - fg \quad \boxed{f =}$$

Kill fractions

$$12 \left(\frac{2}{3}f + \frac{5}{12}g \right) = 12(3 - fg)$$

Find LCM of 3 & 12
12

$$\frac{24}{3}f + \frac{60}{12}g = 36 - 12fg$$

$$8f + 5g = 36 - 12fg$$

$$8f + 5g = 36 - 12fg$$

$$+12fg \quad \quad \quad +12fg$$

$$\frac{f(8+12g)}{8+12g} = \frac{36-5g}{8+12g}$$

$$8f + 12fg + 5g = 36$$

$$\quad \quad \quad -5g \quad -5g$$

$$f = \frac{36-5g}{8+12g}$$

$$\frac{x+a}{b} = \frac{4}{5}$$

$$\rightarrow 5(x+a) = 4b$$

$$\textcircled{A} \quad \begin{array}{r} 5x + 5a = 4b \\ -5a \quad -5a \end{array}$$

$$\rightarrow \frac{5x}{5} = \frac{4b-5a}{5}$$
$$\boxed{x = \frac{4b-5a}{5}}$$

$$x =$$

$$\frac{5(x+a)}{5} = \frac{4b}{5}$$

\textcircled{B}

$$x+a = \frac{4b}{5}$$
$$-a \qquad -a$$

$$\boxed{x = \frac{4b}{5} - a}$$