Unit 6 Equations and Inequa

Remember equations have "=" therefore when solving for a variable make sure what is done to one side is also done to the other!!!

A. $2x + 2 = 12$

$2x \boxed{+2-2} = 12-2$

$\frac{2x}{2} = \frac{10}{2}$

$x = 5$

B. $6x - 4 = 8$

$6x \boxed{\cancel{-4+4}} = 8+4$

$\frac{6x}{6} = \frac{12}{6}$

$x = 2$

C. $3(2x + 1) = 12$

$6x + 3 = 12$

$6x \boxed{+3 - 3} = 12 - 3$

$\frac{6x}{6} = \frac{9}{6}$

$x = 9/6 = 1\frac{3}{6} = 1\frac{1}{2}$

D. $-5(n + 1) = -25$

$-5n - 5 = -25$

$-5n \boxed{-5 + 5} = -25 + 5$

$\frac{-5}{-5} = \frac{-20}{-5}$

$n = 4$

CHECK

Left	Right
$-5(n+1)$	-25

$-5(4+1)$

$-5(5)$

$-25 = -25$ ✓

E.

$$\frac{8}{1}(4) - \frac{3}{4}(4)c = \frac{5}{1}(4)$$

$$32 - \frac{12c}{4} = 20$$

$$32 - 3c = 20$$

$$\boxed{32-32} - 3c = 20 - 32$$

$$\frac{-3c}{-3} = \frac{-12}{-3}$$

$$c = 4$$

*Eliminate fractions by multiplying each term by LCM

lowest common multiple

F. $12x + 4 = 20 + 8x$

$$12x - 8x + 4 = 20 \boxed{+8x - 8x}$$

$$4x + 4 = 20$$

$$4x \boxed{+4-4} = 20 - 4$$

$$\frac{4x}{4} = \frac{16}{4}$$

$$x = 4$$

g. $3x - 7 = -2x + 8$

Check

H. $-2x - 1 = x + 5$

$-2x - 1x - 1 = 1x - 1x + 5$

$\boxed{-3x - 1 = 5}$

$-3x \boxed{-1 + 1} = 5 + 1$

$\frac{-3x}{-3} = \frac{6}{-3}$

$x = -2$

I. $6(-2 - x) = -5(2x + 4)$

$-12 - 6x = -10x - 20$

$-12 - 6x + 10x = \boxed{-10x + 10x} - 20$

$-12 + 4x = -20$

$\boxed{-12 + 12} + 4x = -20 + 12$

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

$x = -2$

Equations that have Fractions!!!

$$(6)\frac{x}{6} - (6)5 = (6)\frac{1x}{2}$$

Clear the fractions by multiplying both sides by lowest common multiple

LCM [count by's]

6, 12, 18

2, 4, 6

$$\frac{6x}{6} - 30 = \frac{6x}{2}$$

$$x - 30 = 3x$$

$$x - 3x - 30 = \boxed{3x - 3x}$$

$$-2x - 30 = 0$$

$$-2x \boxed{-30 + 30} = 0 + 30$$

$$\frac{-2x}{-2} = \frac{30}{-2}$$

$$x = -15$$

$$(12)\frac{2x}{3}+(12)\frac{11}{4}=(12)3-(12)\frac{11x}{6}$$

$$\frac{24x}{3}+\frac{132}{4}=36-\frac{132x}{6}$$

$$\boxed{8x+33=36-22x}$$

$$8x+22x+33=36\boxed{-22x+22x}$$

$$30x+33=36$$

$$30x\boxed{+33-33}=36-33$$

$$\frac{30x}{30}=\frac{3}{30}$$

$$\boxed{x=\frac{3}{30}=\frac{1}{10}}$$

$$(6)\frac{1}{3}(5 - 3y) = (6)\frac{5}{6}(y-2)$$

$$\frac{6}{3}(5-3y) = \frac{30}{6}(y-2)$$

$$\boxed{2(5-3y) = 5(y-2)}$$

$$10 - 6y = 5y - 10$$

$$10 - 6y - 5y = \boxed{5y - 5y} - 10$$

$$10 - 11y = -10$$

$$\boxed{10 - 10} - 11y = -10 - 10$$

$$\frac{-11y}{-11} = \frac{-20}{-11}$$

$$\boxed{y = \frac{20}{11} \text{ or } 1\tfrac{9}{11}}$$

$$* \quad \frac{-20}{-11} = \frac{20}{11}$$

A taxicab charges $2.50, plus $1.78 per kilometre.

A. Write a Let statement Let "d" represent distance
K represent Kilometers

B. Write an equation for cost.

$C = 2.50 + 1.78d$

C. How long is a trip that costs $21.19?

$C = 2.50 + 1.78d$

$21.19 = 2.50 + 1.78d$

$1.78d + 2.50 = 21.19$

$1.78d \boxed{+2.50 - 2.50} = 21.19 - 2.50$

$\frac{1.78d}{1.78} = \frac{18.69}{1.78}$

$d = 10.5$ KM

Jane has a choice of 2 companies to rent a car.

Company A charges $150 per week, plus $0.25 per kilometre driven

A = B

$150 + 0.25d = 175 + 0.20d$

Company B charges $175 per week, plus $0.20 per kilometre driven.

C. Determine the distance that Jane must drive for the two rental costs to be the same.

D. Check your answer.

□ = negative

1 – 9 MC Show work

16 – 19
24 – 26 } show work

□ 2

DO NOT WRITE ON SHEETS!