

Definition & Properties of Equations

Answer

 Addition & Subtraction Properties

$$\begin{aligned} \star x - 4 &= 6 \\ x - 4 + 4 &= 6 + 4 \\ x &= 10 \end{aligned}$$

$$\begin{aligned} \star x + 5 &= 12 \\ x + 5 - 5 &= 12 - 5 \\ x &= 7 \end{aligned}$$

$$\begin{aligned} \star x - 14 &= 43 \\ x - 14 + 14 &= 43 + 14 \\ x &= 57 \end{aligned}$$

$$\begin{aligned} \star x + 72 &= 49 \\ x + 72 - 72 &= 49 - 72 \\ x &= -23 \end{aligned}$$

$$\begin{aligned} \star -23 + x &= 39 \\ -23 + x + 23 &= 39 + 23 \\ x &= 62 \end{aligned}$$

$$\begin{aligned} \star 48 + x &= -63 \\ 48 + x - 48 &= -63 - 48 \\ x &= -111 \end{aligned}$$

 Multiplication & Division Properties

$$\begin{aligned} \star 0.5x &= 15 \\ 0.5x \times 2 &= 15 \times 2 \\ x &= 30 \end{aligned}$$

$$\begin{aligned} \star 3x &= 15 \\ \frac{3x}{3} &= \frac{15}{3} \\ x &= 5 \end{aligned}$$

$$\begin{aligned} \star -0.25x &= 12 \\ -0.25x \times (-4) &= 12 \times (-4) \\ x &= -48 \end{aligned}$$

$$\begin{aligned} \star 7x &= -84 \\ \frac{7x}{7} &= -\frac{84}{7} \\ x &= -12 \end{aligned}$$

 Challenge

$$\begin{aligned} \star 0.1x + 24 &= -79 \\ 0.1x + 24 - 24 &= -79 - 24 \\ 0.1x &= -103 \\ 0.1x \times 10 &= -103 \times 10 \\ x &= -1030 \end{aligned}$$

打卡小结

这两天的打卡，小朋友会从Math6方程的定义和解简单方程开始学习，再过渡到移项、分数方程的内容，能够帮助更加顺利地衔接PreA的复杂方程和应用题学习💪



Move Terms to Solve Equations

Answer

 Move Like Terms Together

$$\begin{aligned} \star 2x + 3 &= 11 \\ 2x &= 11 - 3 \\ 2x &= 8 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} \star 5x - 4 &= 16 \\ 5x &= 16 + 4 \\ 5x &= 20 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} \star x + 2 &= 3x - 6 \\ 2 + 6 &= 3x - x \\ 8 &= 2x \\ x &= 4 \end{aligned}$$

$$\begin{aligned} \star 4x - 3 &= x + 6 \\ 4x - x &= 6 + 3 \\ 3x &= 9 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} \star -7 + 2x &= 4x - 1 \\ -7 + 1 &= 4x - 2x \\ -6 &= 2x \\ x &= -3 \end{aligned}$$

$$\begin{aligned} \star 179 + 13x &= x + 23 \\ 13x - x &= 23 - 179 \\ 12x &= -156 \\ x &= -13 \end{aligned}$$

$$\begin{aligned} \star 5 + 0.35x &= 0.1x + 17 \\ 0.35x - 0.1x &= 17 - 5 \\ 0.25x &= 12 \\ x &= 48 \end{aligned}$$

$$\begin{aligned} \star 278 + 4x &= -226 - 20x \\ 4x + 20x &= -226 - 278 \\ 24x &= -504 \\ x &= -21 \end{aligned}$$



Challenge

$$\star 4050(x - 3) = 2025(x + 1) + 6075$$

Method 1

$$\frac{1}{2025} \times 4050(x - 3) = \frac{1}{2025} \times 2025(x + 1) + \frac{1}{2025} \times 6075$$

$$2(x - 3) = x + 1 + 3$$

$$2x - x = 1 + 3 + 6$$

$$x = 10$$

Method 2

$$4050x - 12150 = 2025x + 2025 + 6075$$

$$4050x - 2025x = 2025 + 6075 + 12150$$

$$2025x = 20250$$

$$x = 10$$

打卡小结

通过这两天的打卡，小朋友已经能够理解Math6**移项解方程**的重要思想，这个方法的易错点在于“**变号**”，小朋友解题的过程中需要牢记并养成**验算**的好习惯💪



Proportional Equations

Answer

Solve Proportional Equations

$$\star \frac{2x}{3} = \frac{8}{3}$$

$$3 \times \frac{2x}{3} = 3 \times \frac{8}{3}$$

$$2x = 8$$

$$x = 4$$

$$\star -\frac{5x}{12} = \frac{11}{13}$$

$$-156 \times \frac{5x}{12} = 156 \times \frac{11}{13}$$

$$-65x = 132$$

$$x = -\frac{132}{65}$$

$$\star \frac{11}{7} = \frac{3x}{11}$$

$$77 \times \frac{11}{7} = 77 \times \frac{3x}{11}$$

$$121 = 21x$$

$$x = \frac{121}{21}$$

$$\star \frac{4x}{51} = -\frac{19}{36}$$

$$612 \times \frac{4x}{51} = -612 \times \frac{19}{36}$$

$$48x = -323$$

$$x = -\frac{323}{48}$$

$$\star \frac{3x-1}{24} = \frac{x+3}{108}$$

$$216 \times \frac{3x-1}{24} = 216 \times \frac{x+3}{108}$$

$$9(3x-1) = 2(x+3)$$

$$27x-9 = 2x+6$$

$$27x-2x = 9+6$$

$$25x = 15$$

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

$$\star \frac{-x-5}{6} = \frac{9-2x}{216}$$

$$216 \times \frac{-x-5}{6} = 216 \times \frac{9-2x}{216}$$

$$36(-x-5) = 9-2x$$

$$-36x-180 = 9-2x$$

$$-180-9 = 36x-2x$$

$$-189 = 34x$$

$$x = -\frac{189}{34}$$



Challenge

$$\star \frac{3x-1}{4} - \frac{2x+5}{3} = \frac{x-7}{6} + 1$$

$$12 \times \frac{3x-1}{4} - 12 \times \frac{2x+5}{3} = 12 \times \frac{x-7}{6} + 12$$

$$(9x-3) - (8x+20) = 2x-14+12$$

$$9x-8x-2x = -14+3+20+12$$

$$-x = 21$$

$$x = -21$$

打卡小结

通过这两天的打卡，小朋友已经能够理解Math6方程的移项思想和不同类型分数方程的解法，能够帮助更加顺利地过渡PreA的方程和应用学习💪



Word Problems

Answer

- ★ A farm has ducks (2 legs each) and cows (4 legs each). There are 35 heads and 94 legs in total. How many cows are there?

Assume there are x cows, then there are $(35-x)$ ducks.

$$\begin{aligned} 2(35 - x) + 4x &= 94 \\ x &= 12 \end{aligned}$$

- ★ A parking lot has bicycles (2 wheels each) and cars (4 wheels each). There are 50 vehicles and 160 wheels in total. How many cars are parked?

Assume there are x cars, then there are $(50-x)$ bicycles.

$$\begin{aligned} 2(50 - x) + 4x &= 160 \\ x &= 30 \end{aligned}$$

- ★ Alex has 10¢ coins and 25¢ coins. There are 120 coins altogether, worth \$19.80 total. How many 25¢ coins are there?

Assume there are x 25¢ coins, then there are $(120-x)$ 10¢ coins.

$$\begin{aligned} 0.1(120 - x) + 0.25x &= 19.8 \\ x &= 52 \end{aligned}$$

- ★ A theater sold adult tickets (\$25 each) and child tickets (\$12 each). They sold 300 tickets and collected \$5,758. How many adult tickets were sold?

Assume x adult tickets were sold, then $(300-x)$ child tickets were sold.

$$\begin{aligned} 25x + 12(300 - x) &= 5758 \\ x &= 166 \end{aligned}$$

- ★ A stand sold regular lemonade (\$1.25) and strawberry lemonade (\$1.75). They sold 132 cups and made \$182.5. How many cups of regular lemonade were sold?

Assume x cups of regular lemonade were sold, then $(132-x)$ cups of strawberry lemonade were sold.

$$\begin{aligned} 1.25x + 1.75(132 - x) &= 182.5 \\ x &= 97 \end{aligned}$$

- ★ A bakery sold croissants (\$2.40 each) and Danish pastries (\$3.60 each). They sold 150 pastries and earned \$420.00. How many croissants were sold?

Assume x croissants were sold, then $(150-x)$ Danish pastries were sold.

$$\begin{aligned} 2.4x + 3.6(150 - x) &= 420 \\ x &= 100 \end{aligned}$$



Challenge

- ★ A city implements tiered pricing for residential electricity usage, with the following rates:

- Tier 1: Monthly usage up to 500 kWh, charged at \$0.12/kWh
- Tier 2: Monthly usage over 500 kWh and up to 1,000 kWh, the excess portion charged at \$0.15/kWh
- Tier 3: Monthly usage over 1,000 kWh, the excess portion charged at \$0.20/kWh

If Tom's family paid \$177 for electricity in a month, what was their total electricity consumption (in kWh)?

The cost of Tier 1 is $500 * 0.12 = 60$ dollars.

The cost of Tier 2 is $500 * 0.15 = 75$ dollars.

So, combined cost for Tier 1 and Tier 2 (first 1000 kWh) is $60+75=135$ dollars.

Since $\$177 > \135 , the total electricity consumption of Tom's family is over 1,000 kWh.

Assume the total electricity consumption is x kWh.

$$\begin{aligned} 135 + 0.20(x - 1000) &= 177 \\ x &= 1210 \end{aligned}$$



打
卡
总
结

🎉恭喜小朋友们坚持完成三周打卡练习！相信大家在 Math6 代数部分已经有了显著进步。

接下来我们将用一节【不等式主题公开课】，帮助孩子搞定 Math6 最后一块代数难点，顺利衔接 PreA！

欢迎感兴趣的家长扫码咨询公开课，仅需 \$1，名额有限，先到先得～