

Outcome 1 - Solving Linear Equations

Bronze examples...

Examples...

Solve the following equations...

$$\begin{array}{r} 7x + 3 = 38 \\ -3 \quad -3 \\ \hline 7x = 35 \\ +7 \quad +7 \\ \hline x = 5 \end{array}$$

Take away 3!

Divide by 7!

$$\begin{array}{r} 8t - 4 = 3t + 41 \\ -3t + 4 \quad -3t + 4 \\ \hline 5t = 45 \quad t = 9 \\ \div 5 \quad \div 5 \end{array}$$

Get all the t's on one side and the numbers on the other!

Divide by 5!

Silver example

Examples...

Solve the following equations...

$$\begin{array}{r} 2(3x - 2) = 2(2x + 5) \\ -4x + 4 \quad -4x + 4 \\ \hline 6x - 4 = 4x + 10 \\ -4x + 4 \quad -4x + 4 \\ \hline 2x = 14 \\ \div 2 \quad \div 2 \\ \hline x = 7 \end{array}$$

Multiply out brackets

Get all the x's on one side and the numbers on the other!

Divide by 2!

Gold example

Examples... **Eliminate fractions!**

Solve the following equation...

$$\times 10) \quad \frac{x+1}{5} + \frac{x-2}{2} = 3$$

$$\frac{10x+10}{5} + \frac{10x-20}{2} = 30$$

$$2x+2+5x-10=30$$

$$\begin{array}{r} 7x-8=30 \\ +8 \quad +8 \\ \hline 7x=38 \\ \div 7 \quad \div 7 \end{array}$$

Multiply ALL through by the L.C.M. of the denominators!

Do the division!

Then solve as normal!

$$x = \frac{38}{7}$$

Bronze Questions

Solve the following equations...

1 $3x + 2 = 11$ 2 $2p + 7 = 27$

3 $4d + 3 = 19$ 4 $5m - 8 = 37$

5 $6w - 8 = 64$ 6 $7z + 1 = 3z + 21$

7 $7n + 3 = n + 45$ 8 $10e + 8 = e + 62$

9 $8t - 5 = 3t - 20$ 10 $8r - 15 = 3r + 5$

Silver Questions

Solve the following equations...

1 $6(4x - 12) = 96$ 2 $2(4a - 5) = 2(3a + 4)$

3 $3(5p + 10) = 60$ 4 $3(3p + 2) = 2(4p + 5)$

5 $4(5d - 20) = 120$ 6 $4(4c - 3) = 2(2c + 6)$

7 $5(3m + 9) = 105$ 8 $4(4d - 2) = 5(2d + 2)$

9 $2(3w - 6) = 42$ 10 $5(3t - 6) = 3(4t + 4)$

Gold Questions

Solve the following equations...

1 $\frac{x}{5} = 3$ 2 $\frac{x+7}{2} = 3$

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

5 $\frac{x}{3} + \frac{x}{2} = 7$ 6 $\frac{x}{4} + \frac{x}{2} = 9$

7 $2x - 1 = \frac{x+3}{4}$ 8 $5x - 4 = \frac{7x+1}{2}$

9 $\frac{x+5}{3} + \frac{x-2}{9} = 4$ 10 $\frac{2x+3}{2} + \frac{x-9}{4} = 1$

Bronze Answers

- | | |
|-------------|-------------|
| 1. $x = 3$ | 2. $p = 10$ |
| 3. $d = 4$ | 4. $m = 9$ |
| 5. $w = 12$ | 6. $z = 5$ |
| 7. $n = 7$ | 8. $e = 6$ |
| 9. $t = -3$ | 10. $r = 4$ |

Silver Answers

- | | |
|-------------|--------------|
| 1. $x = 7$ | 2. $a = 9$ |
| 3. $p = 2$ | 4. $p = 4$ |
| 5. $d = 10$ | 6. $c = 2$ |
| 7. $m = 4$ | 8. $d = 3$ |
| 9. $w = 9$ | 10. $t = 14$ |

Gold Answers

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|---------------|---------------|
| 1. $x = 15$ | 2. $x = -1$ |
| 3. $x = 4$ | 4. $x = 2/5$ |
| 5. $x = 42/5$ | 6. $x = 12$ |
| 7. $x = 1$ | 8. $x = 3$ |
| 9. $x = 23/4$ | 10. $x = 7/5$ |