Solving Linear 1

Solve the following:

1. $8x - 3 = 5x + 13$

2. $3x + 1 > 10$ and $2x + 7 < 15$

3. $3(x + 6) > 12$

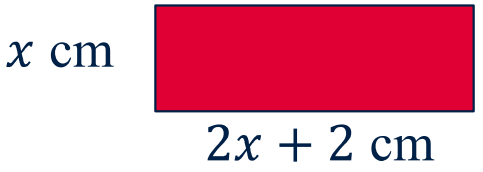
4. $24 - 3x = 9$

5. $14 \geq 8 + 5x$

6. $6 - 2x < 5x + 34$

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

8. The perimeter of the rectangle is 24cm. Find the value of x



Solving Linear 1

Solutions on the next slide….

Solving Linear 1 Solutions

1. $8x - 3 = 5x + 13$ →

$$3x - 3 = 13$$
$$3x = 16$$
$$x = \frac{16}{3}$$

2. $3x + 1 > 10$ and $2x + 7 < 15$ →

$3x > 9$ $\quad$ $2x < 8$

$x > 3$ $\quad$ $x < 4$

So $3 < x < 4$

3. $3(x + 6) > 12$ →

$x + 6 > 4$ or $3x + 18 > 12$

$x > -2$ $\quad$ $3x > -6$

$x > -2$

4. $24 - 3x = 9$ →

$$-3x = -15$$
$$x = 5$$

Unsure about any of these? Search Solving linear equations. Next try Solving Linear 2 …

Solving Linear 1 Solutions

5. $14 \geq 8 + 5x$ →

$6 \geq 5x$

$\frac{6}{5} \geq x$ or $x \leq \frac{6}{5}$

6. $6 - 2x < 5x + 34$ →

$6 < 7x + 34$

$-28 < 7x$

$-4 < x$ or $x > -4$

7. $\frac{2x+3}{7} = \frac{4x-5}{3}$ →

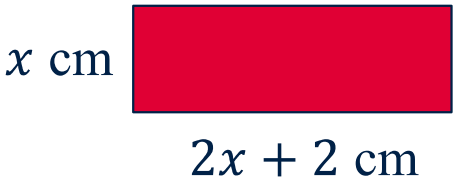
$3(2x + 3) = 7(4x - 5)$

$6x + 9 = 28x - 35$

$44 = 22x$

$x = 2$

8. The perimeter of the rectangle is 24cm. Find the value of x



→

$x + (2x + 2) + x + (2x + 2) = 24$

$6x + 4 = 24$

$6x = 20$

$x = \frac{10}{3}$

Unsure about any of these? Search Solving linear equations. Next try Solving Linear 2 …

Solving Linear 2

Solve the following:

1. $6x + 5 = 47$

2. $5x + 7 = x + 25$

3. $7(x - 4) = 14$

4. $29 - 4x < 22$

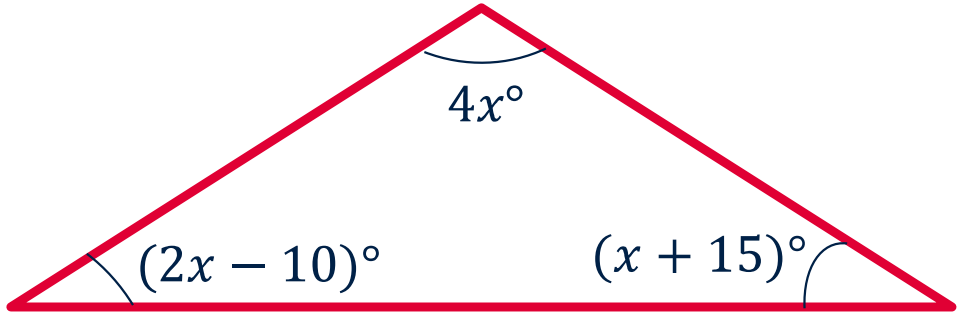
5. $3x < 2x - 1 < 4x + 2$

Hint: Split into two inequalities

6. $19 + 2x = 3x + 15$

7. $\frac{3x - 1}{5} \geq \frac{3x + 5}{2}$

8. Find the value of x



Solving Linear 2

Solutions on the next slide….

Solving Linear 2 Solutions

Solve the following:

1. $6x + 5 = 47$ →

$$6x = 42$$
$$x = 7$$

2. $5x + 7 = x + 25$ →

$$4x + 7 = 25$$
$$4x = 18$$
$$x = 4.5$$

3. $7(x - 4) = 14$ →

$x - 4 = 2$ or $7x - 28 = 14$

$x = 6$ $\quad$ $7x = 42$

$x = 6$

4. $29 - 4x < 22$ →

$29 - 22 < 4x$ or $-4x < -7$

$7 < 4x$ $\quad$ $x > \frac{-7}{-4}$

$\frac{7}{4} < x$ $\quad$ $x > \frac{7}{4}$

When multiplying or dividing by a negative, the inequality reverses direction

Solving Linear 2 Solutions

5. $3x < 2x - 1 < 4x + 2$

$3x < 2x - 1$

$x < -1$

$2x - 1 < 4x + 2$

$-1 < 2x + 2$

$-3 < 2x$

$-\frac{3}{2} < x$

So $-\frac{3}{2} < x < -1$

6. $19 + 2x = 3x + 15$

$19 = x + 15$

$4 = x$

7. $\frac{3x - 1}{5} \geq \frac{3x + 5}{2}$

$2(3x - 1) \geq 5(3x + 5)$

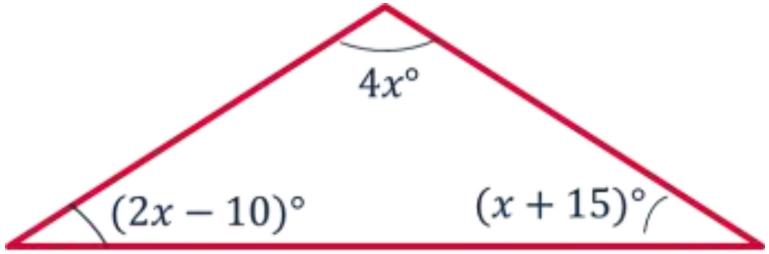
$6x - 2 \geq 15x + 25$

$-2 \geq 9x + 25$

$-27 \geq 9x$

$-3 \geq x$

8. Find the value of x



$4x + (2x - 10) + (x + 15) = 180$

$7x + 5 = 180$

$7x = 175$

$x = 25$