

QUICK COVER

Solving linear equations 3

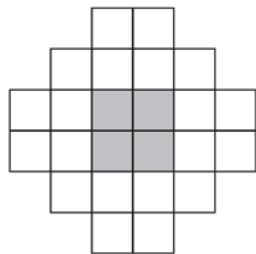
Task 1 : Solving $ax + b = cx + 16$

Task 2 : Solving $ax \pm b = cx \pm d$

Task 3 : Solving $ax \pm b = c - dx$

Task 4 : Mixture of Tasks 2 & 3

Puzzle : TASK 4



Help and hints.....

Solving linear equations 3

Remember that you must 'do the same' to the expressions on both sides of the equals sign.

TASK 1

$$\begin{array}{r} 4x + 3 = 2x + 15 \\ -2x \quad -2x \end{array}$$

Subtract 2x from both sides

$$\begin{array}{r} 2x + 3 = 15 \\ -3 \quad -3 \end{array}$$

Subtract 3 from both sides

$$\begin{array}{r} 2x = 12 \\ x = 6 \end{array}$$

Divide both sides by 2

TASK 2

$$\begin{array}{r} 6x - 5 = 2x + 15 \\ -2x \quad -2x \end{array}$$

Subtract 2x from both sides

$$\begin{array}{r} 4x - 5 = 15 \\ +5 \quad +5 \end{array}$$

Add 5 to both sides

$$\begin{array}{r} 4x = 20 \\ x = 5 \end{array}$$

Divide both sides by 4

TASK 3 & 4

$$\begin{array}{r} 5x + 4 = 28 - 3x \\ +3x \quad +3x \end{array}$$

Add 3x to both sides

$$\begin{array}{r} 8x + 4 = 28 \\ -4 \quad -4 \end{array}$$

Subtract 4 from both sides

$$\begin{array}{r} 8x = 24 \\ x = 3 \end{array}$$

Divide both sides by 3

Solving Equations 3

| TASK 1 | TASK 2 | TASK 3 | TASK 4 |
|-------------------------------|--------------------------------|-------------------------------|---------------------------------|
| 1. $6x + 1 = 2x + 21$ | 1. $5x + 11 = 2x - 1$ | 1. $5x - 4 = 46 - 5x$ | 1. $5x + 12 = 2x + 13.5$ |
| 2. $6x + 6 = 5x + 11$ | 2. $7x - 6 = 5x - 4$ | 2. $6x + 9 = 41 - 2x$ | 2. $6x + 3 = 2x + 5$ |
| 3. $6x + 4 = 2x + 24$ | 3. $5x - 2 = 3x + 6$ | 3. $5x - 6 = 22 - 2x$ | 3. $5x - 10 = 2x - 13$ |
| 4. $3x + 4 = 2x + 9$ | 4. $5x - 2 = 2x + 13$ | 4. $3x - 4 = 6 - 2x$ | 4. $5x - 9 = 1 - 5x$ |
| 5. $4x + 5 = 3x + 7$ | 5. $6x + 10 = 3x + 22$ | 5. $2x + 4 = 40 - 4x$ | 5. $6x - 11 = -43 - 2x$ |
| 6. $6x + 1 = 2x + 13$ | 6. $6x + 10 = 4x + 18$ | 6. $4x - 2 = 34 - 2x$ | 6. $5x - 7 = -14 - 2x$ |
| 7. $6x + 4 = 2x + 12$ | 7. $5x - 9 = 4x - 13$ | 7. $4x - 6 = 30 - 2x$ | 7. $6x + 1 = -17 - 3x$ |
| 8. $6x + 4 = 5x + 7$ | 8. $5x - 10 = 3x + 2$ | 8. $4x - 10 = 71 - 5x$ | 8. $5x - 2 = 2x + 1$ |
| 9. $3x + 2 = 2x + 5$ | 9. $3x - 2 = 2x - 6$ | 9. $3x + 3 = 59 - 5x$ | 9. $6x + 6 = -14 - 4x$ |
| 10. $7x + 3 = 3x + 11$ | 10. $5x + 11 = 3x + 9$ | 10. $3x - 1 = 63 - 5x$ | 10. $5x - 1 = 27 - 2x$ |
| 11. $3x + 3 = 2x + 6$ | 11. $4x - 10 = 2x + 2$ | 11. $6x + 9 = 39 - 4x$ | 11. $5x - 9 = 2x$ |
| 12. $7x + 4 = 5x + 8$ | 12. $7x + 6 = 4x + 7.5$ | 12. $2x - 4 = 8 - 4x$ | 12. $4x - 2 = 6 - 4x$ |
| 13. $7x + 3 = 2x + 23$ | 13. $8x - 6 = 4x + 10$ | 13. $2x - 6 = 43 - 5x$ | 13. $3x - 4 = 6 - 2x$ |
| 14. $8x + 4 = 2x + 22$ | 14. $4x + 10 = 2x + 2$ | 14. $3x + 8 = 50 - 4x$ | 14. $5x + 2 = -22 - 3x$ |
| 15. $8x + 4 = 2x + 28$ | 15. $4x + 9 = 2x + 13$ | 15. $6x + 1 = 91 - 4x$ | 15. $5x + 6 = -30 - 4x$ |

Solving Equations 3

ANSWERS

| TASK 1 | | TASK 2 | | TASK 3 | | TASK 4 | |
|--------|---------|--------|-----------|--------|---------|--------|-----------|
| 1. | $x = 5$ | 1. | $x = -4$ | 1. | $x = 5$ | 1. | $x = 0.5$ |
| 2. | $x = 5$ | 2. | $x = 1$ | 2. | $x = 4$ | 2. | $x = 0.5$ |
| 3. | $x = 5$ | 3. | $x = 4$ | 3. | $x = 4$ | 3. | $x = -1$ |
| 4. | $x = 5$ | 4. | $x = 5$ | 4. | $x = 2$ | 4. | $x = 1$ |
| 5. | $x = 2$ | 5. | $x = 4$ | 5. | $x = 6$ | 5. | $x = -4$ |
| 6. | $x = 3$ | 6. | $x = 4$ | 6. | $x = 6$ | 6. | $x = -1$ |
| 7. | $x = 2$ | 7. | $x = -4$ | 7. | $x = 6$ | 7. | $x = -2$ |
| 8. | $x = 3$ | 8. | $x = 6$ | 8. | $x = 9$ | 8. | $x = 1$ |
| 9. | $x = 3$ | 9. | $x = -4$ | 9. | $x = 7$ | 9. | $x = -2$ |
| 10. | $x = 2$ | 10. | $x = -1$ | 10. | $x = 8$ | 10. | $x = 4$ |
| 11. | $x = 3$ | 11. | $x = 6$ | 11. | $x = 3$ | 11. | $x = 3$ |
| 12. | $x = 2$ | 12. | $x = 0.5$ | 12. | $x = 2$ | 12. | $x = 1$ |
| 13. | $x = 4$ | 13. | $x = 4$ | 13. | $x = 7$ | 13. | $x = 2$ |
| 14. | $x = 3$ | 14. | $x = -4$ | 14. | $x = 6$ | 14. | $x = -3$ |
| 15. | $x = 4$ | 15. | $x = 2$ | 15. | $x = 9$ | 15. | $x = -4$ |

| | | | | |
|-----------------------|------------|-----------------------|--------------------|-----------------------|
| $8x + 7 = 5x + 10$ | $x = -4$ | $8x + 7 = 5x + 10$ | $x^2 - 15 = 7 + x$ | $2x^2 - 15 = 7 + x$ |
| $6x - 7 = 63 - 4x$ | $9 = x$ | $6x - 7 = 63 - 4x$ | $9 = x$ | $6x - 7 = 63 - 4x$ |
| $4x + 4 = 2x + 14$ | $x = 3$ | $4x + 4 = 2x + 14$ | $x = 3$ | $4x + 4 = 2x + 14$ |
| $3x - 10 = 2x - 9.5$ | $x = 0.5$ | $3x - 10 = 2x - 9.5$ | $x = 0.5$ | $3x - 10 = 2x - 9.5$ |
| $7x + 11 = 4x + 21.5$ | $3 = x$ | $7x + 11 = 4x + 21.5$ | $3 = x$ | $7x + 11 = 4x + 21.5$ |
| $9 - x = x$ | $x = 4$ | $9 - x = x$ | $x = 4$ | $9 - x = x$ |
| $8x - 8 = 4x - 20$ | $x = -2.5$ | $8x - 8 = 4x - 20$ | $x = -2.5$ | $8x - 8 = 4x - 20$ |
| $3x + 12 = -24 - 3x$ | $x = -10$ | $3x + 12 = -24 - 3x$ | $x = -10$ | $3x + 12 = -24 - 3x$ |
| $49 + x^2 = 4 + x$ | $x = -1$ | $49 + x^2 = 4 + x$ | $x = -1$ | $49 + x^2 = 4 + x$ |
| $81 + x^2 = 21 + x$ | $x = -1.5$ | $81 + x^2 = 21 + x$ | $x = -1.5$ | $81 + x^2 = 21 + x$ |
| $x^2 - 30 = 2 + x$ | $x = 10$ | $x^2 - 30 = 2 + x$ | $x = 10$ | $x^2 - 30 = 2 + x$ |
| $6x + 1 = 2x - 75$ | $x = 2$ | $6x + 1 = 2x - 75$ | $x = 2$ | $6x + 1 = 2x - 75$ |
| $6x - 2 = -18 - 2x$ | $x = 7$ | $6x - 2 = -18 - 2x$ | $x = 7$ | $6x - 2 = -18 - 2x$ |
| $6x + 7 = -15.5 - 3x$ | $x = 1$ | $6x + 7 = -15.5 - 3x$ | $x = 1$ | $6x + 7 = -15.5 - 3x$ |
| $3x + 9 = 6 - 3x$ | $x = 3.5$ | $3x + 9 = 6 - 3x$ | $x = 3.5$ | $3x + 9 = 6 - 3x$ |
| $6x - 2 = -18 - 2x$ | $x = 7$ | $6x - 2 = -18 - 2x$ | $x = 7$ | $6x - 2 = -18 - 2x$ |
| $3x - 3 = 2x - 8$ | $x = 5$ | $3x - 3 = 2x - 8$ | $x = 5$ | $3x - 3 = 2x - 8$ |

