GRADE 8

GET READY

FOR

HIGH SCHOOL

MATHEMATICS

(A review of Grade 8 topics in preparation for High School)

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Contents

TEST 7

1. Solve :

a) $x + 5 = 7$

b) $x - 3 = 5$

c) $4 + x = 10$

d) $8 = x - 4$

e) $3x = 10 + 2x$

f) $12 = 16 - x$

g) $3x + 4 = 2x + 8$

h) $4x - 1 - 3x = 6$

i) $6 + 5x - 2 = 4x$

j) $15 - x = 10$

2. Solve :

a) $5x - 2 = 3x + 8$

b) $9x + 5 = 6x + 23$

c) $12x - 1 = 10x + 7$

d) $8x + 2 - 3x = 22$

e) $10x + 8 = 38 - 5x$

f) $5x + 3x = 15 + 4x + 1$

TEST 7 Solutions

An equation is like a balance. → $2 + 3 = 5$

If we remove 3 from the left side, we must remove 3 from the right side.

Note that when $2 + 3 = 5$ changes to $2 = 5 - 3$ it looks as if the 3 moves to the other side and changes from $+3$ to -3, and that is the "rule" or "shortcut" we use in solving equations.

Here are a few more examples:

① $5 + 4 = 9$
$5 = 9 - 4$

② $6 - 2 = 4$
$6 = 4 + 2$

③ $8 = 12 - 4$
$8 + 4 = 12$

By using this technique with letter equations we can get the equation to tell us the value of x, rather than guessing.

① $x - 4 = 6$
$x = 6 + 4$
$x = 10$

② $3 + x = 10$
$x = 10 - 3$
$x = 7$

TEST 7 Solutions

1a) $x + 5 = 7$

$x = 7 - 5$

$x = 2$

b) $x - 3 = 5$

$x = 5 + 3$

$x = 8$

c) $4 + x = 10$

$x = 10 - 4$

$x = 6$

d) $8 = x - 4$

$8 + 4 = x$

$12 = x$

> Note: If you keep the equal signs lined up it is easier to see which term is moving.

e) $3x = 10 + 2x$

$3x - 2x = 10$

$x = 10$

f) $12 = 16 - x$

$12 - 16 = -x$

$-4 = -x$

$x = 4$

OR $12 = 16 - x$

$x + 12 = 16$

$x = 16 - 12$

$x = 4$

g) $3x + 4 = 2x + 8$

$3x - 2x = -4 + 8$

$x = 4$

In this question I moved the 4 and 2x at the same time. This puts the x's on one side and pure numbers on the other side.

h) $4x - 1 - 3x = 6$

$1x - 1 = 6$

$x = 6 + 1$

$x = 7$

If you have 'like terms' on the same side, it is easier to simplify first

TEST 7 Solutions

1 i) $6 + 5x - 2 = 4x$

$4 + 5x = 4x$

$4 = 4x - 5x$

$4 = -x$

$x = -4$

OR $6 + 5x - 2 = 4x$

$4 + 5x = 4x$

$5x - 4x = -4$

$x = -4$

j) $15 - x = 10$

$-x = 10 - 15$

$-x = -5$

$x = 5$

OR $15 - x = 10$

$15 - 10 = x$

$5 = x$

2 a) $5x - 2 = 3x + 8$

$5x - 3x = 2 + 8$ ← Put the x-terms on one side and pure numbers on the other side

$2x = 10$

$\frac{2x}{2} = \frac{10}{2}$ ← To eliminate the 2, divide both sides by 2.

$x = 5$

b) $9x + 5 = 6x + 23$

$9x - 6x = 23 - 5$

$\frac{3x}{3} = \frac{18}{3}$

$x = 6$