

## Solving Linear Equations: math test, Grade 9 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

### 1 Expressions and order of operations

/ 3 pts

- a. Calculate  $36 \div 4 + 2 \cdot 7$ .
- b. Calculate  $5 + 3(9 - 4)^2$ .
- c. Evaluate  $2a^2 - 3b$  for  $a = -3$  and  $b = 4$ .

### 2 One-step and two-step equations

/ 3 pts

Solve each equation.

- a.  $x - 13 = 8$
- b.  $-3y = 27$
- c.  $5k + 7 = -18$

### 3 Multi-step equations

/ 4 pts

Solve each equation.

a.  $4(2x - 3) + 5 = 33$

b.  $7x - 2(x - 4) = 23$

### 4 Variables on both sides

/ 4 pts

Solve each equation.

a.  $6x - 5 = 2x + 11$

b.  $3(x + 4) = 5x - 2$

### 5 Ride-share fare

/ 3 pts

A ride costs a \$3 base fare plus \$2 per mile. Dana paid \$21. Write an equation and find the length of the ride.

### 6 Formulas and special cases

/ 3 pts

a. Solve  $A = \frac{1}{2}bh$  for  $h$ .

b. Find  $h$  when  $A = 30$  and  $b = 12$ .

c. How many solutions does  $4x - 1 = 4x + 3$  have?



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