

# KLASKAMER 10

## GRAAD 11 WISKUNDE: EPISODE 18

### KWADRATIESE VERGELYKINGS 2

#### VRAAG 1:

Los op vir  $x$  in elkeen van die volgende:

a.  $4^{2-x} = 4^x - 6$  (5)

b.  $x + 3\sqrt{x+2} - 2 = 0$  (5)

**BLIKslim**

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TOTAAL: 10 PUNTE

# GRAAD 11 WISKUNDE: EPISODE 18 (MEMORANDUM)

## KWADRATIESE VERGELYKINGS 2

### VRAAG 1

a)

$$4^{2-x} = 4^x - 6$$
$$4^2 \cdot 4^{-x} = 4^x - 6$$
$$\frac{4^2}{4^x} = 4^x - 6 \checkmark$$

Stel  $4^x = k \checkmark$

$$\frac{16}{k} = k - 6$$
$$\therefore 16 = k^2 - 6k$$
$$\therefore 0 = k^2 - 6k - 16$$
$$\therefore 0 = (k - 8)(k + 2)$$
$$\therefore k = 8 \text{ of } k = -2 \checkmark$$
$$4^x = 8 \text{ of } 4^x = -2 \text{ (Geen oplossing) } \checkmark$$
$$2^{2x} = 2^3$$
$$\therefore 2x = 3 \therefore x = \frac{3}{2} \checkmark$$

b)

$$x + 3\sqrt{x+2} - 2 = 0$$
$$3\sqrt{x+2} = -x + 2 \checkmark$$
$$(3\sqrt{x+2})^2 = (-x + 2)^2 \checkmark$$
$$9(x+2) = x^2 - 4x + 4$$
$$9x + 18 = x^2 - 4x + 4$$
$$0 = x^2 - 13x - 14 \checkmark$$
$$0 = (x - 14)(x + 1)$$
$$x = 14 \text{ (n.v.t.) } \checkmark \text{ of } x = -1 \checkmark$$