

# REŠITVE

## 1. Izračunaj.

$$\begin{aligned}
 \text{a) } & 4 - 10 : (-2) + (-18) : (-6) \cdot (-2) - 12 : (-3) = \\
 & = 4 + 5 + 3 \cdot (-2) + 4 = \\
 & = 9 - 6 + 4 = \\
 & = \underline{\underline{7}}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & (-2a)^2 \cdot (-4ab) - (-3a)^2 \cdot (-ab) = \\
 & = 4a^2 \cdot (-4ab) - 9a^2 \cdot (-ab) = \\
 & = -16a^3b + 9a^3b = \underline{\underline{-7a^3b}}
 \end{aligned}$$

## 2. Odpravi oklepaje in poenostavi izraz.

$$\begin{aligned}
 \text{a) } & -(x - y) + 10x + 2y - (-3x + 3y) = \\
 & = \underline{-x} + \underline{y} + \underline{10x} + \underline{2y} + \underline{3x} - \underline{3y} = \\
 & = \underline{\underline{12x}}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & ((2x + y) - (-3x + 2y) - 4x + 3y) \cdot (-3x^2) = \\
 & = (\underline{2x} + \underline{y} + \underline{3x} - \underline{2y} - \underline{4x} + \underline{3y}) \cdot (-3x^2) = \\
 & = (x + 2y) \cdot (-3x^2) = \\
 & = \underline{\underline{-3x^3 - 6x^2y}}
 \end{aligned}$$

## 3. Zmnoži.

$$\begin{aligned}
 \text{a) } & 5x(x^2 + y) = \\
 & = \underline{\underline{5x^3 + 5xy}}
 \end{aligned}$$

$$\begin{aligned}
 \text{c) } & \frac{1}{5}a(5a + 10) = \\
 & = \underline{\underline{a^2 + 2a}}
 \end{aligned}$$

$$\begin{aligned}
 \text{b) } & a^3(a - b) = \\
 & = \underline{\underline{a^4 - a^3b}}
 \end{aligned}$$

$$\begin{aligned}
 \text{d) } & (-4a + 3b)(-2b) = \\
 & = \underline{\underline{8ab - 6b^2}}
 \end{aligned}$$

#### 4. Izpostavi največji skupni faktor.

a)  $12a - 8 =$

$$= \underline{4(3a - 2)}$$

d)  $x^3 + x^2 + x =$

$$= \underline{x(x^2 + x + 1)}$$

b)  $a^2x^2 + ax + a =$

$$\underline{a(ax^2 + x + 1)}$$

e)  $6ab - 6a + 12ab^2 =$

$$\underline{6a(b - 1 + 2b^2)}$$

c)  $6x - 27x^3 =$

$$\underline{3x(2 - 9x^2)}$$

f)  $2x^2 + 4xy^2 =$

$$\underline{2x(x + 2y^2)}$$

#### 5. Zmnoži dvočlenika

a)  $(x + 4)(x - 3) =$

$$= x^2 - 3x + 4x - 12$$

$$= \underline{x^2 + x - 12}$$

c)  $(0,5x + 5)(0,2x - 2) =$

$$0,1x^2 - x + x - 10 =$$

$$= \underline{0,1x^2 - 10}$$

b)  $(-b + 5)(b - 2) =$

$$= -b^2 + 2b + 5b - 10$$

$$= \underline{-b^2 + 7b - 10}$$

d)  $\left(\frac{1}{2}x + 4\right)\left(\frac{1}{2}x + 6\right) =$

$$\frac{1}{4}x^2 + 3x + 2x + 24 =$$

$$= \underline{\frac{1}{4}x^2 + 5x + 24}$$

#### 6. Poenostavi izraz.

a)  $(x + 1)(x + 2) - x^2 + 3 =$

$$= (x^2 + 2x + x + 2) - x^2 + 3 =$$

$$= \cancel{x^2} + 3x + 2 - \cancel{x^2} + 3 =$$

$$= \underline{3x + 5}$$

b)  $(a + 3)(a - 5) + 3(a - b) =$

$$= \underline{a^2 - 5a + 3a - 15 + 3a - 3b}$$

$$= \underline{a^2 + a - 3b - 15}$$

b)  $(5x^2 + 3x - 4)(x - 1) - (2x - 3)(x + 4) =$

$$= 5x^3 - 5x^2 + 3x^2 - 3x - 4x + 4 - (2x^2 + 8x - 3x - 12)$$

$$= 5x^3 - 2x^2 - 7x + 4 - 2x^2 - 8x + 3x + 12$$

$$= 5x^3 - 4x^2 - 12x + 16$$

d)  $(a + 4) - a(a - 5) + (a - 5)(a + 4) =$

$$= \underline{a + 4} - a^2 + 5a + a^2 + 4a - 5a - 20$$

$$= \underline{5a - 16}$$

## 7. Kvadriraj dvočlenik.

a)  $(b + 5)^2 =$   
 $= b^2 + 10b + 25$

b)  $(y - 7)^2 =$   
 $y^2 - 14y + 49$

c)  $(-x + 2y)^2 =$   
 $x^2 - 4xy + 4y^2$

d)  $(-2d + 8z)^2 =$   
 $4d^2 - 32dz + 64z^2$

e)  $(x^2 + 5)^2 =$   
 $= x^4 + 10x^2 + 25$

f)  $(y + \frac{1}{3})^2 =$   
 $y^2 + \frac{2}{3}y + \frac{1}{9}$

g)  $(-0,2x + y)^2 =$   
 $0,04x^2 - 0,4xy + y^2$

h)  $(\frac{b}{4} - 4a)^2 =$   
 $\frac{b^2}{16} - 2ab + 16a^2$

## 8. Namesto neznanke x vstavi število -2 in izračunaj vrednost izraza.

a)  $(-3x - 4)^2 =$   
 $= (-3 \cdot (-2) - 4)^2 =$   
 $= (+6 - 4)^2 = (2)^2 = \underline{\underline{4}}$

b)  $2x(1 - x)^2 =$   
 $= 2 \cdot (-2) (1 - (-2))^2 =$   
 $= -4 \cdot (3)^2 = -4 \cdot 9 = \underline{\underline{-36}}$

## 9. Poenostavi in izračunaj vrednost izraza.

a)  $(2a - 3)^2 - 5a^2 + 15a - 11 =$  a = -2  
 $= 4a^2 - 12a + 9 - 5a^2 + 15a - 11 =$   
 $= -a^2 + 3a - 2 =$   
 $= -(-2)^2 + 3 \cdot (-2) - 2 =$   
 $= -4 - 6 - 2 = \underline{\underline{-12}}$

b)  $(-6x + 5y)(x - y) - 2(x + y) =$  x = 2, y = -1  
 $= -6x^2 + 6xy + 5xy - 5y^2 - 2x - 2y$   
 $= -6x^2 + 11xy - 5y^2 - 2x - 2y$   
 $= -6(2)^2 + 11 \cdot 2 \cdot (-1) - 5 \cdot (-1)^2 - 2 \cdot (2) - 2 \cdot (-1) =$   
 $= -24 - 22 - 5 - 4 + 2 =$   
 $= \underline{\underline{-53}}$

## 10. Zapiši izraz po besedilu.

Kvadratu razlike števil 2x in 3 prištej dvakratno vrednost razlike števil x in 1.

$$(2x - 3)^2 + 2(x - 1)$$

## 11. Izračunaj.

a)  $(x - 4)(x + 4) = x^2 - 16$

c)  $(0,2x - 0,5y)(0,2x + 0,5y) = 0,04x^2 - 0,25y^2$

b)  $(3x - 5)(3x + 5) =$   
 $9x^2 - 25$

d)  $(10x - \frac{1}{10})(10x + \frac{1}{10}) = 100x^2 - \frac{1}{100}$

### 12. Poenostavi.

$$\begin{aligned} \text{a) } (x-3)^2 + (x+2)(x-2) &= \\ x^2 - 6x + 9 + x^2 - 4 &= \\ \underline{\underline{2x^2 - 6x + 5}} \end{aligned}$$

$$\begin{aligned} \text{b) } (4x-y)(4x+y) - (x+2y)^2 &= \\ 16x^2 - y^2 - x^2 - 4xy - 4y^2 &= \\ \underline{\underline{15x^2 - 5y^2 - 4xy}} \end{aligned}$$

### 13. Razstavi.

$$\text{a) } x^2 - 49 = \underline{\underline{(x-7)(x+7)}}$$

$$\text{e) } 2y^2 - 10 = \underline{\underline{2(y^2 - 5)}}$$

$$\text{b) } x^2 - 25 = \underline{\underline{(x-5)(x+5)}}$$

$$\text{f) } x^2 + 9x + 14 = \underline{\underline{(x+7)(x+2)}}$$

$$\text{c) } x^4 - 36 = \underline{\underline{(x^2-6)(x^2+6)}}$$

$$\text{g) } x^2 + x - 6 = \underline{\underline{(x-2)(x+3)}}$$

$$\text{d) } 5a^2 - 20 = \underline{\underline{5(a^2-4) = 5(a-2)(a+2)}}$$

$$\text{h) } x^3 - x = \underline{\underline{x(x^2-1) = x(x-1)(x+1)}}$$

### 14. Poenostavi izraz.

$$\begin{aligned} (x+3)^2 - 2(x+3)(x-3) + (x+2)(x-3) &= \\ = x^2 + 6x + 9 - 2(x^2-9) + x^2 - 3x + 2x - 6 &= \\ = \cancel{x^2} + 6x + 9 - 2\cancel{x^2} + 18 + \cancel{x^2} - x - 6 &= \\ = \underline{\underline{5x + 21}} \end{aligned}$$

### 15. Za katere vrednosti algebrski izraz ni določen.

$$\text{a) } \frac{4}{x} \quad x = \underline{\underline{0}}$$

$$\text{b) } \frac{x+2}{x-5} \quad x = \underline{\underline{5}}$$

$$\text{c) } \frac{3+x}{3x-3} \quad x = \underline{\underline{1}}$$

$$\text{d) } \frac{3}{2x} \quad x = \underline{\underline{0}}$$

### 16. Razširi ulomke.

$$\frac{a}{x} \cdot 8 = \underline{\underline{\frac{8a}{8x}}}$$

$$\frac{6x}{x+2} \cdot (x-2) = \underline{\underline{\frac{6x(x-2)}{x^2-4}}}$$

$$\frac{2a}{a+1} \cdot 5 = \underline{\underline{\frac{10a}{5a+5}}}$$

$$\frac{6a}{5x} \cdot 3x^2 = \underline{\underline{\frac{18ax^2}{15x^3}}}$$

### 17. Okrajšaj ulomek.

$$\frac{18}{50} = \frac{9}{\underline{\underline{25}}}$$

$$\frac{2a+2b}{4a+4b} = \frac{2(a+b)}{4(a+b)} = \frac{1}{2} \quad \frac{16y^4}{18y^5} = \frac{8}{\underline{\underline{9y}}}$$

$$\frac{2x^2+10x}{4x^3+20x^2} = \frac{2x(x+5)}{4x^2(x+5)} = \frac{1}{\underline{\underline{2x}}}$$