

Yellow Belt Advancement  
Problem Solving Discipline

1. I tried to evaluate  $2x - 5 + 3x^2 - (5x - 2)$  when  $x = 4$

Here's my work:

Show your work here:

Step 1:  $2(4) - 5 + 3(4)^2 - (5(4) - 2)$

Step 2:  $2(4) - 5 + 3(16) - (20 - 2)$

Step 3:  $8 - 5 + 3(16) - (20 - 2)$

Step 4:  $3 + 3(16) - (18)$

Step 5:  $6(16) - 18$

Step 6:  $96 - 18$

Answer: 78

- a. In which step did I make my mistake?
- b. What's the correct answer?

2. Evaluate  $2(-3x - 6x - 2)^2 - (-3x - 4)$  when  $x = -1$

3. Mr. David and Mr. Dave tried to solve:  $-3\frac{2}{3} \cdot 5\frac{2}{7}$

Who was wrong? Why do you think they got it wrong?

Mr. David's Answer	Mr. Dave's Answer
$-15\frac{4}{21}$	$-19\frac{8}{21}$

4. Simplify anyway you want:

$$(2x-5-6)+(2x-5-6)+(2x-5-6)$$

5. Simplify the expression  $(k - 2(k - (2 - k)) - 2)$  by writing it without parentheses.

Simplify

6.  $-6(2x^2 - 4xy) + 2(5x^2 - 7xy) + 15x$

7.  $2x^4y^2 + (-7x^2y^4) - (-3x^2y^4) - 4x^4y^2 - 5x$

8.  $3(-x^2 + x) - 10x^2 + 9 + 2x$

*Simplify and then evaluate when  $x = 5$*

9.  $-4(6 - x) - \frac{-4}{4} + 2x - 3 - 5 - \frac{-9}{3} - 8x$

*Simplify and then evaluate when  $a = -3$ ,  $b = -2$*

10.  $-5a - 6ab + 4ab - 2(6a + 4b + 7)$

## Answers:

1. Step 4-5 (33)
2. 99
3. Mr. David is wrong. He multiplied straight across
4.  $6x-33$
5.  $-3k + 2$
6.  $-2x^2 + 10xy + 15$
7.  $-2x^4y^2 - 4x^2y^4 - 5x$
8.  $-13x^2+5x+9$
9. -38
10. 41