Year 8 collecting like terms worksheet

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Name: _____ Date: _____

Question 1

Simplify 7ab - 3ba + 2a - 5a.

Answer: _____

Question 2

Simplify $4x^2 + 3x - x^2 - 7x + 2$.

Answer: _____

Question 3

A triangle has sides of length (3a + 2b) cm, (a - b) cm and (2a + 4b) cm.

(a) Write a simplified expression for its perimeter.

(b) Find the perimeter when a = 4 and b = 3.

(c) How much longer is the first side than the second side? Simplify your answer.

Answer: _____

Question 4

Simplify 6p - 2q + 3q - 9p.

Answer: _____

Question 5

Simplify:

(a) 3a + 5a

(b) 7x - 2x + 4

(c) 4m × 3

(d) 12y ÷ 4

Answer: _____

Question 6

Each simplification below contains an error. Write the correct answer.

(a) 5a + 3b - 2a + b = 3a + 3b

(b) $4x \times 3x = 12x$

(c) $10y - 4y - y = 6y$

Answer: _____

Year 8 collecting like terms: answers and worked solutions

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Question 1

Key idea: Like terms have exactly the same pronumerals; ab and ba are like terms.

1. 7ab - 3ba = 7ab - 3ab = 4ab 2. 2a - 5a = -3a 3. So the expression simplifies to 4ab - 3a

Answer: 4ab - 3a

Question 2

Key idea: x^2 and x are not like terms, so collect each type separately.

1. x^2 terms: $4x^2 - x^2 = 3x^2$ 2. x terms: 3x - 7x = -4x 3. Constant: 2 4. Result: $3x^2 - 4x + 2$

Answer: $3x^2 - 4x + 2$

Question 3

Key idea: Add or subtract like terms only; when subtracting a bracket, subtract every term inside it.

1. (a) 3a + 2b + a - b + 2a + 4b = (3 + 1 + 2)a + (2 - 1 + 4)b = 6a + 5b 2. (b) 6 × 4 + 5 × 3 = 24 + 15 = 39 cm 3. (c) (3a + 2b) - (a - b) = 3a + 2b - a + b = 2a + 3b

Answer: (a) (6a + 5b) cm (b) 39 cm (c) (2a + 3b) cm

Question 4

Key idea: Collect like terms: the p terms together and the q terms together.

1. 6p - 9p = -3p 2. -2q + 3q = q 3. -3p + q

Answer: -3p + q

Question 5

Answer: (a) 8a (b) 5x + 4 (c) 12m (d) 3y

Question 6

Answer: (a) 3a + 4b (b) $12x^2$ (c) 5y