Algebra: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

Simplify:

(a) 3a + 5a

(b) 7x - 2x + 4

(c) 4m × 3

(d) 12y ÷ 4

Question 2

Expand:

(a) 3(x + 4)

(b) 5(2a - 1)

Question 3

Factorise:

(a) 6x + 18

(b) 10a - 15

Question 4

Write an expression for "5 more than three times a number n".

Section B: Standard (Questions 5-10)

Question 5

Expand:

(a) -2(x + 7)

(b) -4(3 - 2y)

(c) -(5m - 6)

Question 6

Expand and simplify:

(a) $3(x + 2) + 4(x - 1)$

(b) $5(2a + 3) - 2(a - 4)$

(c) $4(3y - 1) - (y + 5)$

Question 7

Factorise fully:

(a) $14m - 21$

(b) $-6x - 9$ (take out a negative common factor)

(c) $12a + 18b - 6$

Question 8

Name the property shown by each statement. Choose from: commutative, associative, distributive, identity, inverse.

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

(b) $4(a + 2) = 4a + 8$

(c) $(2 \times x) \times 5 = 2 \times (x \times 5)$

(d) $y + 0 = y$

(e) $7 + (-7) = 0$

Question 9

Use the distributive property to calculate each product mentally. Show the steps.

(a) 6×98

(b) 7×43

Question 10

A rectangle has a length of $(2x + 5)$ cm and a width of 3 cm.

(a) Write an expanded expression for its area.

(b) Write a simplified expression for its perimeter.

(c) Factorise your perimeter expression.

Algebra: answers

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Question 1

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

Question 2

Answer: (a) 3x + 12 (b) 10a - 5

Question 3

Answer: (a) 6(x + 3) (b) 5(2a - 3)

Question 4

Answer: 3n + 5 (also accept 5 + 3n)

Question 5

Answer: (a) -2x - 14 (b) -12 + 8y (or 8y - 12) (c) -5m + 6 (or 6 - 5m)

Question 6

Answer: (a) 7x + 2 (b) 8a + 23 (10a + 15 - 2a + 8) (c) 11y - 9 (12y - 4 - y - 5)

Question 7

Answer: (a) 7(2m - 3) (b) -3(2x + 3) (c) 6(2a + 3b - 1)

Question 8

Answer: (a) commutative (b) distributive (c) associative (d) identity (e) inverse

Question 9

Answer: (a) 588 (6 × 100 - 6 × 2 = 600 - 12) (b) 301 (7 × 40 + 7 × 3 = 280 + 21)

Question 10

Answer: (a) (6x + 15) cm^2 (b) (4x + 16) cm (2(2x + 5) + 2 × 3) (c) 4(x + 4)