Year 7 Mathematics
Equations Practice Test 1

Name_____

1. Which of the following are equations?

    a) $2 + 6 = 8$ b) $5 + 5 = 12$ c) $3 + 4$ d) $5 = 5 - x$ e) $7 + b$

2 For each of the following equations, state whether it is true or false.

    a) $3 + 9 = 12$

    b) $7 + 3 = 2 \times 5$

    c) $11 \times (2 - 1) = 12 + 3$

    d) $3 + 9x = 60 + 6$ if $x = 7$

    e) $10 + b = 3b + 1$ $b = 3$

    f) $3 + 2x = 21 - y$ if $x = 7$ and $y = 4$

3. Write equations for each of the following scenarios.

    a) The sum of x and 7 is 26.

    b) The number of cards in a deck is x. In 7 decks there are 91 cards.

    c) Peta's age is currently a. In 6 years' time her age will equal 18.

    d) Corey earns $\$w$ per year. He spends $\dfrac{1}{12}$ on sport and $\dfrac{2}{13}$ on food.

    The total amount Corey spends on sport and food is $15 000.

4 For each of these equations, find the value of the missing number that would make it true

    a) $\square \times 6 = 42$ b) $20 - \square = 11$

5 Solve the following equations by inspection.

    a) $a + 12 = 28$ b) $5b = 30$ c) $3x + 13 = 37$ d) $x^2 = 25$

6 For each equation, find the result of applying the given operation to both sides and then simplify.

    a) $2 + x = 5$ [add 4 to both sides]   b) $7x = 10$ [multiply both sides by 2]

    c) $30 = 20b$ [divide both sides by 10]   d) $7q - 4 = 10$ [add 4 to both sides]

7   Show that these pairs of equations are equivalent by stating the operation used.

   a) $2x + 10 = 15$ and $2x = 5$

   b) $5 = 7 - x$ and $10 = 2(7 - x)$

   c) $10(b + 3) = 20$ and $b + 3 = 2$

8   Solve the following equations

   a) 6x = 30   b) $15 = a - 20$ c) $10 = \dfrac{b}{4}$

9 Solve each of the following equations and check the solution.

   a) $7 + 4a = 23$ b) $\dfrac{b}{4} - 2 = 5$ c) $12 = 2(a + 4)$

10 Solve the following equations

   a) $\dfrac{b}{4} = 5$ b) $\dfrac{5y}{3} = 10$ c) $\dfrac{3x}{4} + 7 = 13$ d) $\dfrac{2x - 3}{5} = 3$

11 Expand each of the following.

   a) $4(x+3)$ b) $6(q - 4)$ c) $5(3a+4)$

12 Simplify each of these expressions.

   a) $2x + 5 + x$ b) $3a + 8a + 2 - 2a + 5$

13 Solve each of these equations by expanding brackets first.

   a) $3(x+2) = 1\ 8$ b) $7 = 7(4q - 3)$ c) $3(b + 5) + 4b = 29$

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Answers

Question 1.

    a) Is an equation

    b) Is an equation

    c) Is not an equation

    d) Is an equation

    e) Is an equation

Question 2.

    a) true

    b) true

    c) false

    d) true

    e) false

    f) true

Question 3.

    a) $x + 7 = 26$

    b) $7x = 91$

    c) $a + 6 = 18$

    d) $\dfrac{1}{12} \times w + \dfrac{2}{13} \times w = 15\,000$

Question 4.

    a) 7

    b) 9

Question 5.

    a) $a = 16$

    b) $b = 6$

    c) $x = 8$

    d) $x = \pm 5$

Question 6.

    a) $x + 6 = 9$

    b) $14x = 20$

    c) $3 = 2b$

    d) $7q = 14$

Question 7.

    a) subtracting 5 from both sides

    b) multiplying both sides by 2

    c) dividing both sides by 10

Question 8.

    a) $x = 5$

    b) $a = 35$

    c) $b = 40$

Question 9.

    a) $a = 4$

    b) $b = 28$

    c) $a = 2$

Question 10.

    a) $b = 20$

    b) $y = 6$

    c) $x = 8$

    d) $x = 9$

Question 11.

    a) $4x + 12$

    b) $6q - 24$

    c) $15a + 20$

Question 12.

    a) $3x + 5$

    b) $9a + 7$

Question 13.

    a) $x = 4$

    b) $q = 1$

    c) $b = 2$