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8th Grade Linear equations Worksheet

Q1) Solve the following linear equations:
a) x + 17 = 53 b) x + 22 = -18 c) x - 5 = 50 d) x + 7 = 14

Q2) Find the value of the unknown variable for the following linear equations:
a) 2p + 7 = 3p + 12 b) 2x + 10 = 21 c) 12m + 24 = 4(3m + 5) + 4

Q3) Solve the given equations and find the value of the unknown variable.
a) $\frac{x}{6} = \frac{2}{12}$ b) $\frac{x}{7} = \frac{2}{21}$ c) $\frac{x}{3} + 2 = \frac{4}{7} - \frac{7}{3}$

Q4) Solve for x:
a) $\frac{3x+1}{3} = \frac{2x}{17}$ b) $\frac{7(x-6)+42+3x+1}{7+3(x+1)+7x} = \frac{3}{4}$

Q5) Solve the following equations:
a) $\frac{9x+3}{5x+4} + 1 = \frac{4}{3}$ b) $\frac{x+3}{3} + 2x = 12$

Q6) If $\frac{2-4x}{3} + x + 7 = \frac{x}{5}$, then find the value of 100 - 2x.

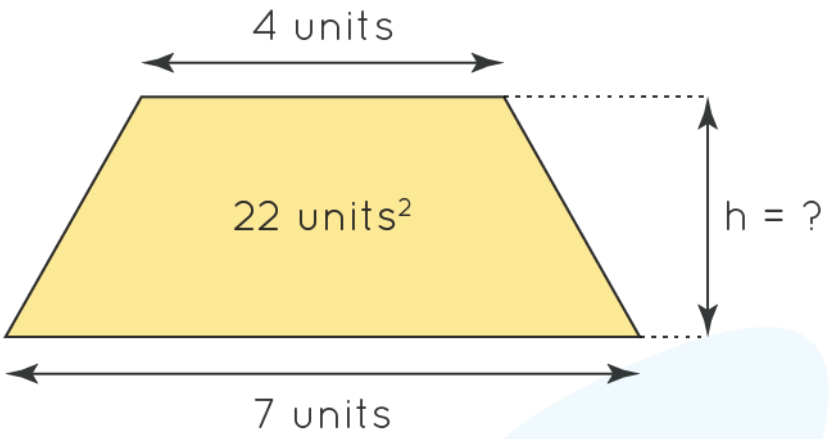
Q7) Solve for the unknown variable:
2(5x - 4) + 2(3 + 3x) = 24x - 2(x + 3(8 + x))

Q8) Solve for the value of z:
$(z-3)(z+5) + (3z-4)(3z-1) - 2z(5z-6) = 0$

Q9) Solve for q: 0.3q + 0.76 = 0.2(3 + 3q)

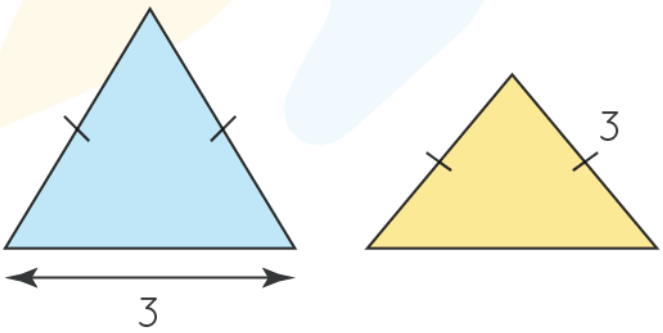
Q10) Given the following equation: 7x + 2 + 5(3 - x) = m(x+1) + 15. For what value of m, **x will have infinite solutions**

Q11) Find the height of the trapezoid whose area is 22 units and has parallel sides with lengths 4 units and 7 units.



Q12) If the sum of two consecutive multiples of 8 is 24. Find the value of these two multiples.

Q13) If the perimeter of the isosceles triangle is 12 units. If the length of one of the sides is 3 units and the area of this triangle is greater than 0. Find the length of the other sides. (Hint: Use Triangle Inequality Theorem)



Q14) The ages of Jason and Jackson are in the ratio 3:2. After 3 years, their ages are in the ratio 7:5. Find their present ages.

Q15) Alex bought 5 pencils and 10 pens together for $13.5 Given that the cost of a pencil and the cost of a pen is in the ratio of 1:4. Find the cost of the one pen and the cost of the one pencil.

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ANSWERS

1(a) x = 36	1(b) x = -40	1(c) x = 55	1(d) x = 7
2(a) p = -5	2(b) $x = \frac{11}{2}$	2(c) Infinite solutions	3(a) x = 1
3(b) $x = \frac{2}{3}$	3(c) $x = -\frac{79}{7}$	4(a) $x = -\frac{17}{45}$	4(b) $x = \frac{13}{5}$
5(a) $x = -\frac{5}{22}$	5(b) $x = \frac{33}{7}$	6) 100 - 2x = 215	7) No solutions
8) Infinite Solutions	9) $x = \frac{11}{2}$	10) m = 2	11) h = 4 units
12) 8, 16	13) 3, 4.5, 4.5	14) Jason's Age = 18 years, Jackson's Age = 12 years	15) Cost of one pencil is $0.3 and cost of one pen is $1.2

FUN FACT

1. A significant amount of credit goes to William Rowan Hamilton for developing the concept of linear equations.

2. The linear equation was invented in the year 1843 by a mathematician from Ireland.