

Factor the following using any of the methods we have discussed. These are not equations, you do not need to solve for the variable. Do the factoring only.

1) $n^2 - 100$
 $= (n-10)(n+10)$

2) $x^2 + 11x + 28$
 $= (x+4)(x+7)$

3) $2y^5 - 8y^4$
 $= 2y^4(y-4)$

4) $12x^2 + 23x - 9$
 $= (3x-1)(4x+9)$

5) $a^2 - 16ab + 64b^2$
 $= (a-8b)(a-8b)$
 $= (a-8b)^2$

6) $w^3 + 125$
 $= (w+5)(w^2-5w+25)$

7) $5x^2 + 5x - 60$
 $= 5(x^2 + x - 12)$
 $= 5(x+4)(x-3)$

8) $6a^2b + 2ab + 20ab^3$
 $= 2ab(3a+1+10b^2)$

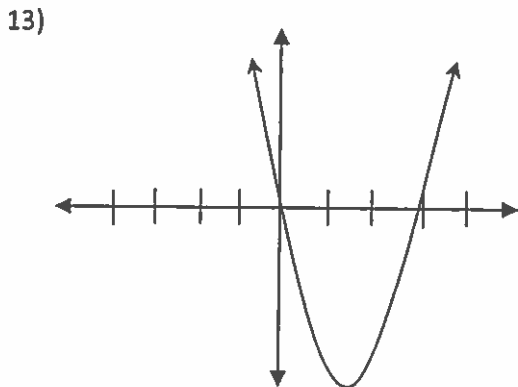
9) $4r^3 - 9r$
 $= r(4r^2 - 9)$
 $= r(2r-3)(2r+3)$

Give the roots (solutions or answers) to the following "pre-factored" equations or graphs. There should be NO WORK to do!!!!

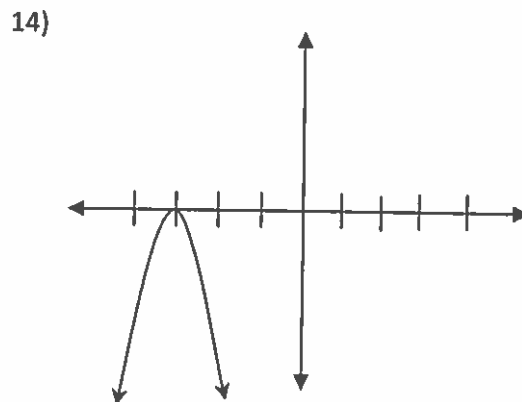
10) $(x-8)(x+12) = 0$
 $x = \underline{8, -12}$

11) $(2y-5)(3y-2) = 0$
 $y = \underline{5/2, 2/3}$

12) $5b(b+2) = 0$
 $b = \underline{0, -2}$



Root(s): 0, 3



Roots(s): -3

Solve the following equations by factoring first, then stating the solutions (or roots).

15) $a^2 - 17a + 72 = 0$

$$(a-8)(a-9) = 0$$

$$a = 8, a = 9$$

16) $9y^3 - 36y^2 = 0$

$$9y^2(y-4) = 0$$

$$y = 0, y = 4$$

17) $n^2 + 18n = -81$

$$n^2 + 18n + 81 = 0$$

$$(n+9)(n+9) = 0$$

$$n = -9$$

18) $15x^2 + 43x + 8 = 0$

$$(3x+8)(5x+1) = 0$$

$$x = -\frac{8}{3}, x = -\frac{1}{5}$$

19) $d^2 - 14 = 5d$

$$d^2 - 5d - 14 = 0$$

$$(d-7)(d+2) = 0$$

$$d = 7, d = -2$$

20) $100m^2 - 1 = 0$

$$(10m+1)(10m-1) = 0$$

$$m = -\frac{1}{10}, m = \frac{1}{10}$$

Write a quadratic equation with the given roots (solutions or answers). Use whatever variable you like.

EXAMPLE: Roots: -6 and 3

If $x = -6$, then the () would be $(x + 6)$, if $x = 3$ then the () would be $(x - 3)$

Now, simply multiply (FOIL) them out:

$$(x + 6)(x - 3)$$

$$x^2 - 3x + 6x - 18$$

$$x^2 + 3x - 18$$

Lastly, add = 0 on the end to make it an equation $x^2 + 3x - 18 = 0$

21) Roots: 7 and -7

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

$$x^2 - 49 = 0$$

22) Roots: -5 and $-\frac{2}{3}$

$$(x+5)(3x+2) = 0$$

$$3x^2 + 2x + 15x + 10 = 0$$

$$3x^2 + 17x + 10 = 0$$

23) Roots: 0 and -12

$$x(x+12) = 0$$

$$x^2 + 12x = 0$$

24) Roots: $\frac{1}{4}$ and $\frac{4}{3}$

$$(4x-1)(3x-4) = 0$$

$$12x^2 - 16x - 3x + 4 = 0$$

$$12x^2 - 19x + 4 = 0$$