

Showdown

$$\textcircled{1} \frac{(-2x)^3}{(x^4)^2} = \frac{-8x^3}{x^8} = \frac{-8}{x^5}$$

$$\textcircled{2} \frac{3x^3 + 4x^2 + x}{x} = 3x^2 + 4x + 1$$

$$\textcircled{D} \quad 25n^2 - 20n + 4$$

$$(5n - 2)^2$$

$$\textcircled{E} \quad 18m^8 - 50m^2$$

$$2m^2(9m^6 - 25)$$

$$2m^2(3m^3 + 5)(3m^3 - 5)$$

$$\textcircled{9} \quad n^2 - 100$$

$$(n + 10)(n - 10)$$

$$\textcircled{10} \quad 6a^2b - 18ab^2$$

$$6ab(a - 3b)$$

$$\textcircled{18} \quad 36x^5 - 48x^4 + 16x^3$$

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

$$4x^3(3x - 2)^2$$

$$\textcircled{4} \quad \frac{30c^4d^5 - 45cd^3}{5cd^2}$$

$$6c^5d^3 - 9d$$

$$4c^8 - 9$$

$$(2c^4 + 3)(2c^4 - 3)$$

$$\textcircled{10} (6a - 4b)^2 = (6a - 4b)(6a - 4b)$$

$$36a^2 - 48ab + 16b^2$$

$$Q20 \quad h = vt - 16t^2$$

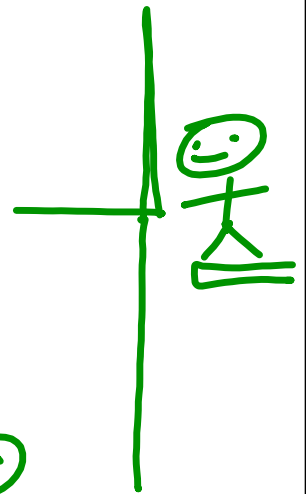
$$40 = 56t - 16t^2$$

$$\frac{16t^2 - 56t + 40 = 0}{8} \quad \frac{0}{8}$$

$$2t^2 - 7t + 5 = 0$$

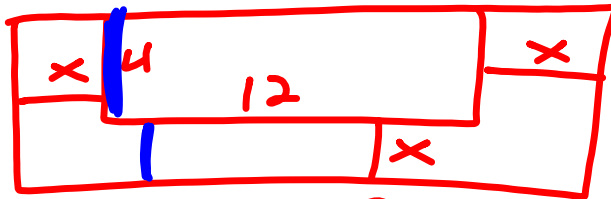
$$(2t - 5)(t - 1) = 0$$

$$t = \frac{5}{2}, 1 \quad \cancel{1s} \quad \textcircled{2.5s}$$



24

$4+x$



$12+2x$

$$(4+x)(12+2x) = 96$$

$$48 + 20x + 2x^2 = 96$$

$$\frac{48 + 20x + 2x^2 - 96}{-96} = \frac{0}{-96}$$

$$\frac{2x^2 + 20x - 48 = 0}{2}$$

$$x^2 + 10x - 24 = 0$$

$$(x+12)(x-2) = 0$$

$$x = -12, 2$$

2m

Simplify.

$$\frac{8x^5y + 6x^4y^4}{2x^3y} - \frac{5x^7 - 10x^{12}}{5x^7}$$

$$4x^2 + 3xy^3 - (1 - 2x^5)$$

$$4x^2 + 3xy^3 - 1 + 2x^5$$

Solve.

$$y^2 - 9y + 18 = 0$$

$$(y-6)(y-3) = 0$$

$$y = 6, 3$$

$$y-6=0$$

$$y-3=0$$

Factor.

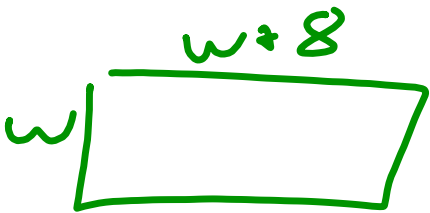
$$42x^3 + 68x^2 + 16x$$

$$2x(21x^2 + 34x + 8)$$

$$\begin{array}{l} 168x^2 \\ \wedge \\ 2x^2 + 28x + 6x + 8 \\ 7x(3x+4) + 2(3x+4) \end{array}$$

$$2x(7x+2)(3x+4)$$

A rectangle is 8cm longer than it is wide. The area is 240cm^2 . Find the dimensions.



$$w(w+8) = 240$$

$$w^2 + 8w = 240$$

$$w^2 + 8w - 240 = 0$$

$$(w+20)(w-12) = 0$$

$$w = -20, 12$$

12cm x 20cm

Factor.

$$\underline{64 - 64m^2} + \underline{m^4 - m^6}$$

$$64(1-m^2) + m^4(1-m^2)$$

$$(1-m^2)(64+m^4)$$

$$(1+m)(1-m)(64+m^4)$$

Factor.

$$7cw + 4c - 7w^2 - 4w$$

$$c(7w+4) - w(7w+4)$$

$$(7w+4)(c-w)$$

The sum of two numbers is 14 and the sum of their squares is 106. Find the numbers.

Solve.

$$q^2 - 21q = -20$$

Factor.

$$n^3 + n^2 - 6n - 6$$

Solve.

$$6 - 4z^2 = 23z$$

Solve.

$$q^3 - 16q = 0$$

Solve.

$$v^2 - 49 = 0$$

Factor.

$$9x^2 - 4z^2 + y^2 - 6xy$$

Simplify.

$$(3x - 8)^2$$

Simplify.

$$\frac{14x^5y^2 - 2x^3y + 8x^2y}{-2x^2y}$$

Simplify.

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

Factor.

$$25x^2 - 60x + 36$$

Simplify.

$$(7x + 2)(7x - 2)$$

Simplify.

$$\frac{-28ab^4}{7a^3b^2}$$

