

**A Precalculus Crossmath
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DIRECTIONS

- A numeric answer is entered one digit per box. Ignore the decimal point when entering the digits. For a negative digit, enter the minus sign with the digit in its own box.
- If the answer is a polynomial then each coefficient is entered in a box starting with the term of highest degree.
- The number of significant places to round to is determined by the number of boxes available for the answer.
- For (x, y) enter x then y .
- For a line, enter m then b .
- For two numeric answers enter the smallest number first.
- For a fraction, enter numerator then denominator.

ACROSS

- The base 10 equivalent of 1110101 in base 2.
- The prime factors of 35
- $(2x-3)^2 + 8x$
- $\log 121$
- The numerator of $\frac{7}{5} + \frac{3}{4}$
- Quotient and remainder of $\frac{5x^2 - 3x - 6}{x+1}$
- The antilog of $(\log 3a + \log 4a - 2 \log a)$
- $\frac{5}{12} \div \frac{7}{10}$ in reduced form
- The positive root of $x^2 + 4x - 6 = 0$
- $\frac{4956x^2}{12x^2}$ when $x = \sqrt{\pi}$
- The ratio of the circumference of a circle to the diameter
- The value of c if $y = c$ is the horizontal asymptote of $y = \frac{3x-1}{x+2}$
- The only two digit prime with each digit the same
- The value of c if $x = c$ is a vertical asymptote of the graph in 20 across
- $\cos \theta \times 10$ if θ is $5\pi/9$ radians

1	2	3		4	5		6	7	8
9				10			11		
12			13			14		15	
	16	17			18		19		
20		21							22
23	24			25		26		27	
	28		29			30			
31			32		33			34	35
36		37		38			39		
40				41			42		

- The maximum number of roots of a cubic polynomial
- Two numbers that differ by 2 and whose product is 195
- $(6x^3 + 2x^2 + 3x + 1) - (2x^2 + x - 1)$
- $\tan(-31^\circ) \times 10^3$
- The exponent of a in $a^6(a^5)^2 / a^4$
- Quotient and remainder of $\frac{5x^3 + x + 13}{x^2 - x + 1}$
- The line through (0,5) that is perpendicular to $y = -\frac{1}{3}x + 2$
- The digits of this number (which is larger than 500) multiply to 21
- Sum of the divisors of 42
- Numerator of $\frac{6x}{x-1} - \frac{1}{x} - 3$ when all terms are combined
- The maximum area of a rectangle with perimeter 80
- $\log_2 4096$

- The volume of a box of dimension $6 \times 8 \times 17\frac{3}{4}$
- DOWN**
- The square of 11
 - The 10th power of 2
 - $f(3)$ if $f(x) = 2x^3 + 5x^2 - 4x - 9$
 - The vertex of $y = x^2 - 10x + 70$
 - $5^{2.6695}$
 - Roots of $x^2 - 9x + 20 = 0$
 - $(1-2x)(x+2)(1+2x)$
 - The length of the hypotenuse of a right triangle of sides 6 and 7
 - $\frac{x+3x^2}{x} + 2x^2$
 - $f(g(x))$ when $x = 2$ if $f(x) = 3x + 6$ and $g(x) = x^2 + 1$
 - The diameter of a circle with area 102 sq. units
 - The area of an equilateral triangle of side length 10
 - A factor of $3x^2 - 4x + 1$

- The slope of the line through the points (1,3) and (6,1)
- The height of a building with angle of elevation of 60° at a distance 44 feet from the base
- 478 ft/sec when expressed in miles per hour
- A monic polynomial with roots 2 and 4
- The sum of the first 150 positive integers
- The intersection of the lines $3y - 2x = 11$ and $3x + 4y = 26$
- The volume of a right circular cone of radius 2 and height 4.15
- Largest solution to $x - 4\sqrt{x} = 0.1$
- When cubed, the sum of the digits of this number gives the original number
- The perimeter of the triangle in 19 down
- The area of a $\frac{1}{2}$ inch wide border that surrounds a 17 x 20 inch picture