# 1 When  $p(x) = x^4 - 2x^3 - 3x^2 + 8x - 4$  is divided by which factor is the remainder the greatest?

a.
$$(x-1)$$
 b. $(x+1)$  c. $(x-2)$  d. $(x-3)$ 

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# 3 As a cannonball travels through the air, its height in meters above the ground at t seconds is  $h(t) = -9.8(t-10)^2 + 980$ . For what time does this equation have physical meaning? Express answer in interval notation.

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# 4 Find 
$$f''(-4)$$
 if  $f(x) = x^4 - 3x^3 + 2x - 7$ 

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# 5 Find the limit, if it exists.

$$\lim_{x \to -6} \frac{x^2 - 36}{x^2 + x - 30}$$

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# 7 How many terms are in the sequence 3, 7, 11,, 39 ?	# 7 How many terms are in the sequence 3, 7, 11,, 39 ?
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# 8 Solve for x:

 $(2^{8x^2})(2^{4x})(2^{-2}) = (2^{2x^2})(2^{5x})$ 

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NMAθ Hustle 2002 NMAθ Hustle 2002 # 9 Solve for x:

$$\begin{vmatrix} 4 & x^2 & x \\ 3 & 1 & 0 \\ -1 & -2 & 3 \end{vmatrix} = 8$$

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# 10 Find 
$$\lim_{x \to \infty} \left( \frac{1}{x} + \frac{1}{x^2} + 1 \right)$$

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# 11 Find f'(x) if  $f(x) = 3\cos^2 5x$ 

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# 12 If the coefficient of the 5<sup>th</sup> and 6<sup>th</sup> terms in the expansion of  $(x-y)^n$  are equal, find the 3<sup>rd</sup> term.

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# 13	Find the dot product given
$\vec{v} = -$	3i+4j-7k and
$\vec{w} = 3$	3i-6j-3k.

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# 14 Simplify:

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$$\frac{q!(q-3)!}{(q-5)!(q+2)!}$$

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# 15 Find the mean of the first 500,000 odd numbers.	# 15 Find the mean of the first 500,000 odd numbers.
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# 16 The height, h in meters, of a projectile launched from under water is given by the portion of the curve of  $h(t) = -t^5 - 2t^4 + 10t^3 + 20t^2 - 9t - 18$  where  $t \ge 0$ , t is in seconds. At what time does the projectile leave the water?

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# 17 Solve and express the answer in interval notation:

$$(x+4)^{2}(x-1)^{2}(x+7)^{2} > 0$$

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# 18 If  $f(x) = -8(x-1)^3(x+2)(x-3)^7(x+1)^4$  at which x intercept does the function just touch the x- axis?

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CODE:	CODE:
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# 19 Which of the functions are even?

I. 
$$y = 3x^2$$

II. 
$$y = 5x^4 - 4$$

III. 
$$y = 4x^2 + 8x + 4$$

IV. 
$$y = x^4 + 3x^2 + 7$$

$$V. y = \cos 5x$$

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# 20	State the domain for	f(x)	in interval
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# 21	What test would be	used to prove
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# 22 A particle is moving along a horizontal line according to the equation  $s(t) = 2t^3 - 4t^2 + 2t - 1$ . Find the velocity at the instant t = 3 seconds.

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# 23 Find 
$$\int \sin \frac{1}{3} x \ dx$$

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$$\int \sin \frac{1}{3} x \ dx$$

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# 24	Solve for x:	$\ln x + \ln (x)$	$2) - 2 \ln 2$
# 24	Solve for x:	$\ln x + \ln (x -$	- 2) = 3 in 2

# 24 Solve for x:  $\ln x + \ln(x-2) = 3\ln 2$ 

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# 25	Exactly evaluate:	$\int_{0}^{2} x e^{3x^{2}}$	dx
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# 25 Exactly evaluate:  $\int_0^2 x \ e^{3x^2} \ dx$ .

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# 25 Exactly evaluate: 
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.

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