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Math_Questions_0036

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An explosion causes debris to rise vertically with an initial velocity of 9 feet per second. The function $s(t) = 16t^2 + 144t$ describes the height of the debris above the ground, $s(t)$, in feet, t seconds after the explosion. What is the instantaneous velocity of the debris 5 second(s) after the explosion?

In the equation above there should be a negative in front of the 16.

There are too many mistakes in these quizzes!!!

- 160
- 16
- 16
- 160

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A spinner is used for which it is equally probable that the pointer will land on any one of six regions. Three of the regions are colored red, two are colored green, and one is colored yellow. If the pointer is spun twice, find the probability it will land on green and then yellow.

- 1/18
- 1/3
- 1/6
- 1/9

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Evaluate the given binomial coefficient:

$$\binom{12}{3}$$

79,833,600

4

220

110

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A restaurant offers a choice of 5 salads, 9 main courses, and 3 desserts. How many possible 3-course meals are there?

17 possible meals

135 possible meals

45 possible meals

270 possible meals

5 of 25

Evaluate the given binomial coefficient:

$$\binom{9}{6}$$

42

504

84

1

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Evaluate the factorial expression:

$9!/7!$

9/7

72

2!

9

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Complete the table for the function and find the indicated limit:

$$\lim_{x \rightarrow 2} x^2 + 8x - 12$$

x	1.9	1.99	1.999	2.001	2.01	2.1
f(x)						

6.810; 7.880; 7.988; 8.0120; 8.120; 9.210; limit = 8.0

16.810; 17.880; 17.988; 18.012; 18.120; 19.210; limit = 18.0

16.692; 17.592; 17.689; 17.710; 17.808; 18.789; limit = 17.70

5.043; 5.364; 5.396; 5.404; 5.436; 5.763; limit = 5.40

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Find the slope of the tangent line to the graph of f at the given point:

$$f(x) = -2x + 6 \text{ at } (2, 2)$$

-6

6

-2

-1/2

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Use properties of limits to find the indicated limit. It may be necessary to rewrite an expression before limit properties can be applied.

$$\lim_{x \rightarrow 1} \frac{x^4 - 1}{x - 1}$$

0

Does not exist

4

2

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Write the first five terms of the sequence whose general term is given:

$$a_n = 4(2n - 3)$$

-1, 1, 3, 5, 7

-4, -8, -12, -16, -20

-12, -4, 4, 12, 20

-4, 4, 12, 20, 28

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Evaluate the given binomial coefficient:

$$\binom{11}{7}$$

7920

1

165

330

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A piecewise function is given. Use the function to find the indicated limits, or state that a limit does not exist.

(a) $\lim_{x \rightarrow d^-} f(x)$, (b) $\lim_{x \rightarrow d^+} f(x)$, and (c) $\lim_{x \rightarrow d} f(x)$

$$f(x) = \begin{cases} x^2 - 5 & \text{if } x < 0 \\ -2 & \text{if } x \geq 0 \end{cases}; d = -3$$

(a) -5 (b) -2 (c) does not exist

(a) 4 (b) 4 (c) 4

(a) -2 (b) -5 (c) does not exist

(a) -5 (b) -2 (c) -2

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Use the formula for the general term (the n th term) of a geometric sequence to find the indicated term of the sequence with the given first term, a_1 , and common ratio, r .

Find a_{12} when $a_1 = 2$, $r = 2$

4100

4096

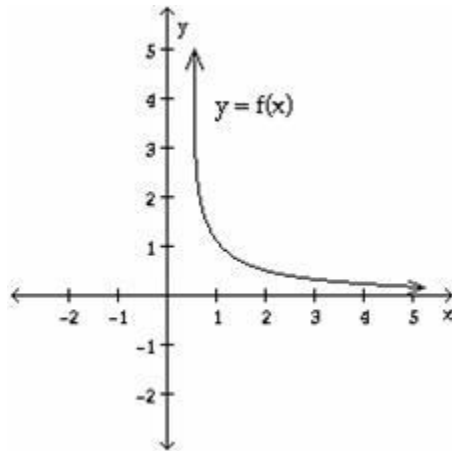
24

8192

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Use the graph of f to find the indicated limit

$\lim_{x \rightarrow \infty} f(x)$



3

4

Does not exist

0

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Use the formula for the value of an annuity to solve the problem. Round your answer to the nearest dollar.

Looking ahead to retirement, you sign up for automatic savings in a fixed-income 401K plan that pays 6% per year compounded annually. You plan to invest \$3500 at the end of each year for the next 20 years. How much will your account have in it at the end of 20 years?

\$130,520

\$127,207

\$128,750

\$130,048

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Use the empirical probability formula to solve the exercise. Express the answer as a fraction. Then express the probability as a decimal, rounded to the nearest thousandth, if necessary.

The table below represents a random sample of the number of deaths per 100 cases for a certain illness over time. If a person infected with this illness is randomly selected from all infected people, find the probability that the person lives 3-4 years after diagnosis.

Years after Diagnosis	Number of Deaths
1 - 2	15
3 - 4	35
5 - 6	16
7 - 8	9
9 - 10	6
11 - 12	4
13 - 14	2
15+	13

7/120; 0.058

35/100; 0.35

1/35; 0.029

35/65; 0.538

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The function $f(x) = x^3$ describes the volume of a cube, $f(x)$, in cubic inches, whose length, width, and height each measure x inches. If x is changing, find the average rate of change of the volume with respect to x as x changes from 4 inches to 4.1 inches.

- 33.23 cubic inches per inch
- 1329.21 cubic inches per inch
- 49.21 cubic inches per inch
- 49.21 cubic inches per inch

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How many 2-digit numbers can be formed using the digits 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0? No digit can be used more than once.

- 90
- 45
- 1,814,400
- 3,628,800

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You are dealt one card from a standard 52-card deck. Find the probability that you are not dealt a 10.

- 1/13
- 9/10
- 1/10
- 12/13

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Write a formula for the general term (the n th term) of the arithmetic sequence. Do not use a recursion formula. Then use the formula for a_n to find the indicated term of the sequence.

Find a_{11} ; 12, 10, 8, ...

32

-8

-10

34

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Use the Binomial Theorem to expand the expression and express the result in simplified form.

$$(3x + 2)^3$$

$$27x^3 + 54x^2 + 36x + 8$$

$$9x^2 + 12x + 4$$

$$27x^3 + 54x^2 + 54x + 8$$

$$9x^6 + 6x^3 + 64$$

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If the given sequence is a geometric sequence, find the common ratio:

$$4, 12, 36, 108, 324$$

Not a geometric sequence

12

3

1/3

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Find the derivative of f at x . That is, find $f'(x)$.

$$f(x) = x^3 + 19; x = 8$$

24

1536

192

6

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Write the first five terms of the arithmetic sequence: $a_1 = 3; d = 3$

3, 5, 7, 9, 11

6, 9, 12, 15, 18

0, 3, 6, 9, 12

3, 6, 9, 12, 15

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Use properties of limits to find the indicated limit. It may be necessary to rewrite an expression before limit properties can be applied:

$$\lim_{x \rightarrow 1} \frac{2x-7}{4x+5}$$

-5/9

-1/2

Does not exist

-7/5