| |
|---|
| الملف نموذج تدريبي امتحاني ثاني |
| موقع المناهج ⇐ المناهج الإماراتية ⇐ الصف الثاني عشر المتقدم ⇐ رياضيات ⇐ الفصل الثاني |



| | |
|---|---|
| المزيد من الملفات بحسب الصف الثاني عشر المتقدم والمادة رياضيات في الفصل الثاني | |
| 1 | كل مايخص الاختبار التكويني لمادة الرياضيات للصف الثاني عشر يوم الأحد 9/2/2020 |
| 2 | تدريبات متنوعة مع الشرح على الوحدة الرابعة(النهايات والاتصال) |
| 3 | تدريبات متنوعة على تطبيقات الاشتقاق |
| 4 | قوانين هندسية |
| 5 | الاختبار القياسي في الرياضيات |

# REVISION 10 TERM 2

## 12 ADVANCED

# MATH 2021-2022

10

النموذج التجريبي الثاني


تم تصميم المراجعة طبقا لهيكل
الاختبارات والمتسجدات

التدريب الجيد يضمن لك التفوق

# MR – AHMED ATA

خطوة واحدة للتفوق

انتظروا المزيد

من سلسلة المراجعات النهائية

*graph the function and completely discuss the graph of* $f(x) = \dfrac{x^2 - 1}{x}$

1) $x - intercept =$

2) $y - interept =$

3) *vertical asymptote*

4) *horizontal asymptote*

$f'(x) =$

$f''(x) =$

5) *critical numbers*
6) *intervals increasing*
7) *intervals decreasing*
5) *local maxi muni*

7) *concave up*
8) *concave down*
9) *inflection point and local minimun*

*graph the function and completely discuss the graph of* $f(x) = \dfrac{x^2 + 4}{x^3}$

1) $x - intercept =$

2) $y - interept =$

3) *vertical asymptote*

4) *horizontal asymptote*

$f'(x) =$

$f''(x) =$

5) *critical numbers*
6) *intervals increasing*
7) *intervals decreasing*
5) *local maxi muni*

7) *concave up*
8) *concave down*
9) *inflection point and local minimun*

*graph the function and completely discuss the graph of* $f(x) = \dfrac{x-4}{x^3}$

1) $x-$ *intercept* $=$

2) $y-$ *interept* $=$

3) *vertical asymptote*

4) *horizontal asymptote*

$f'(x) =$

$f''(x) =$

5) *critical numbers*
6) *intervals increasing*
7) *intervals decreasing*
5) *local maxi muni*

7) *concave up*
8) *concave down*
9) *inflection point and local minimun*

*graph the function and completely discuss the graph of* $f(x) = \dfrac{2x}{x^2 - 1}$

1) $x -$ *intercept* =

2) $y -$ *interept* =

3) *vertical asymptote*

4) *horizontal asymptote*

$f'(x) =$

$f''(x) =$

5) *critical numbers*
6) *intervals increasing*
7) *intervals decreasing*
5) *local maxi muni*

7) *concave up*
8) *concave down*
9) *inflection point and local minimun*

***graph the function and completely discuss the graph of*** $f(x) = \dfrac{3x^2}{x^2+1}$

1) $x - intercept =$

2) $y - interept =$

3) ***vertical asymptote***

4) ***horizontal asymptote***

$f'(x) =$

$f''(x) =$

5) ***critical numbers***

6) ***intervals increasing***

7) ***intervals decreasing***

5) ***local maxi muni***

7) ***concave up***

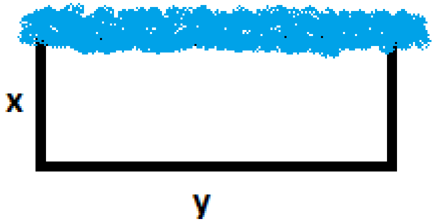
8) ***concave down***

9) ***inflection point***

***and local minimun***

6

A three-sided fence is to be built next to a straight section of river, which forms the fourth side of a rectangular region. The enclosed area is to equal 1800 $ft^2$. Find the minimum perimeter and the dimensions of the corresponding enclosure




$a)\ x = 15\ , y = 120\ and\ permeter = 150\ ft$

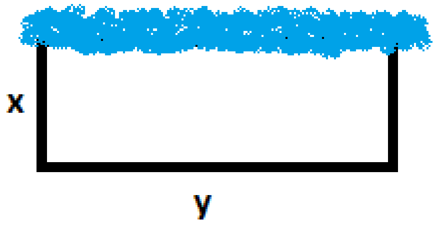
$b)\ x = 30\ , y = 60\ and\ permeter = 120\ ft$

$c)\ x = 45\ , y = 40\ and\ permeter = 130 ft$

$d)\ x = 60\ , y = 30\ and\ permeter = 150\ ft$

7

A three-sided fence is to be built next to a straight section of river, which forms the fourth side of a rectangular region. There is 96 feet of fencing available. Find the maximum enclosed area and the dimensions of the corresponding enclosure



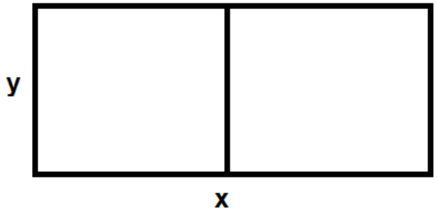

a) $x = 32\ , y = 36\ and\ Area = 1152ft^2$

b) $x = 48\ , y = 24\ and\ Area = 1152ft^2$

c) $x = 24\ , y = 48\ and\ Area = 1152ft^2$

d) $x = 36\ , y = 32\ and\ Area = 1152ft^2$

A two-pen corral is to be built. The outline of the corral forms two identical adjoining rectangles. If there is 120 ft of fencing available, what dimensions of the corral will maximize the enclosed area?




a) $x = 45 , y = 10 \text{ and } Area = 450ft^2$

b) $x = 25 , y = 25 \text{ and } Area = 625ft^2$

c) $x = 20 , y = 30 \text{ and } Area = 600ft^2$

d) $x = 30 , y = 20 \text{ and } Area = 600ft^2$

9

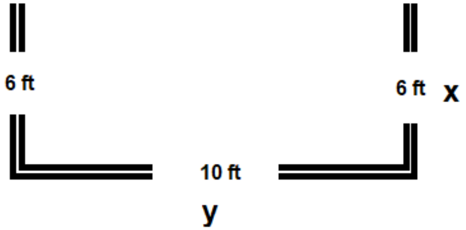
A showroom for a department store is to be rectangular with walls on three sides, 6-ft door openings on the two facing sides and a 10-ft door opening on the remaining wall. The showroom is to have 800 ft$^2$ of floor space. What dimensions will minimize the length of wall used?

a) $58ft$ $length\ of\ wall\ wehn\ x = 20ft\ and\ y = 40\ ft$

b) $58ft$ $length\ of\ wall\ wehn\ x = 30ft\ and\ y = 30\ ft$

c) $58ft$ $length\ of\ wall\ wehn\ x = 40ft\ and\ y = 20\ ft$

d) $58ft$ $length\ of\ wall\ wehn\ x = 25ft\ and\ y = 35\ ft$



that the rectangle of maximum area for a given perimeter P is always

a) *rectangle with length tiwce wide*

b) *rectangle with length triples wide*

c) *square(rectangle with length equals wide)*

d) *rectangle with length four times wide* that the rectangle of minimum perimeter for a given area A is always

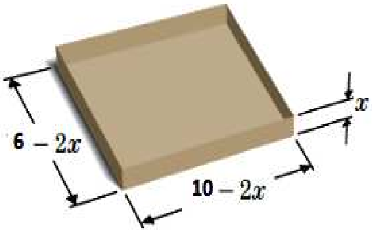
a) *rectangle with length tiwce wide*

b) *rectangle with length triples wide*

c) *square(rectangle with length equals wide)*

d) *rectangle with length four times wide*

A box with no top is to be built by taking a 6 in by 10 in sheet of cardboard, cutting $x$-in. squares out of each corner and folding up the sides. Find the value of $x$ that maximizes the volume of the box.




a) $x = \frac{8-\sqrt{19}}{3}$

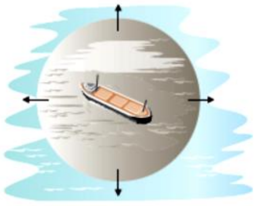
b) $x = \frac{8+\sqrt{19}}{3}$

c) $x = \frac{4-\sqrt{19}}{3}$

c) $x = \frac{4\sqrt{19}}{3}$

13

Oil spills out of a tanker at the rate of 120 gallons per minute. The oil spreads in a circle with a thickness of $\frac{1}{4}\,in$ Given that 1 $ft^3$ equals 7.5 gallons, determine the rate at which the radius of the spill is increasing when the radius reaches 100 ft



a) $r' = \frac{48}{25\pi} ft/min$

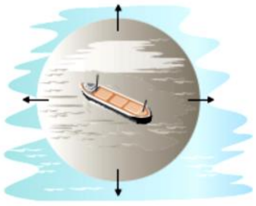
b) $r' = \frac{96}{25\pi} ft/min$

c) $r' = \frac{144}{25\pi} ft/min$

d) $r' = \frac{112}{25\pi} ft/min$

14

Oil spills out of a tanker at the rate of 120 gallons per minute. The oil spreads in a circle with a thickness of $\frac{1}{4}in$ Given that 1 $ft^3$ equals 7.5 gallons, determine the rate at which the radius of the spill is increasing when the radius reaches 200 ft



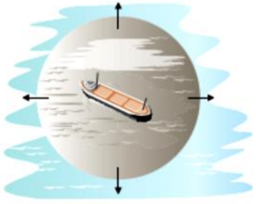
a) $r' = \frac{48}{25\pi} ft/min$

b) $r' = \frac{96}{25\pi} ft/min$

c) $r' = \frac{144}{25\pi} ft/min$

d) $r' = \frac{112}{25\pi} ft/min$

Oil spills out of a tanker at the rate of 90 gallons per minute. The oil spreads in a circle with a thickness of $\frac{1}{8}$ *in* Determine the rate at which the radius of the spill is increasing when the radius reaches 100 feet



a) $r' = \dfrac{48}{25\pi} ft/min$

b) $r' = \dfrac{96}{25\pi} ft/min$

c) $r' = \dfrac{144}{25\pi} ft/min$

d) $r' = \dfrac{112}{25\pi} ft/min$

Oil spills out of a tanker at the rate of g gallons per minute. The oil spreads in a circle with a thickness of $\frac{1}{4}\ in$ Given that the radius of the spill is increasing at a rate of 0.6 ft/min when the radius equals 100 feet, determine the value of g.

a) $v' = 68.9\ gal/min$

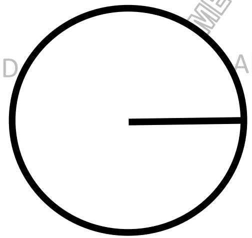
b) $v' = 38.1\ gal/min$

c) $v' = 45.9\ gal/min$

d) $v' = 58.9\ gal/min$

Assume that the infected area of an injury is circular.

If the radius of the infected area is 3 mm and growing at a rate of 1 mm/hr, at what rate is the infected area increasing?



a) *the area is increasing by rate* $3\pi\ mm^2/h$

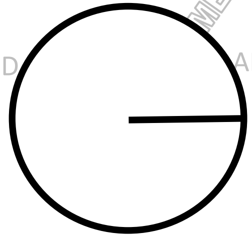
b) *the area is increasing by rate* $6\pi\ mm^2/h$

c) *the area is increasing by rate* $9\pi\ mm^2/h$

d) *the area is increasing by rate* $12\pi\ mm^2/h$

Assume that the infected area of an injury is circular.

If the radius of the infected area is 6 mm and growing at a rate of 1 mm/hr, at what rate is the infected area increasing?



a) *the area is increasing by rate* $3\pi\ mm^2/h$

b) *the area is increasing by rate* $6\pi\ mm^2/h$

c) *the area is increasing by rate* $9\pi\ mm^2/h$

d) *the area is increasing by rate* $12\pi\ mm^2/h$

**Suppose that a raindrop evaporates in such a way that it maintains a spherical shape. Given that the volume of a sphere of radius r is $V = \frac{4}{3}\pi r^2$ and its surface area is $A = 4\pi r^2$, if the radius changes in time, show that $V' = Ar'$. If the rate of evaporation $(V')$ is proportional to the surface area, then radius changes the radius changes at a constant rate**

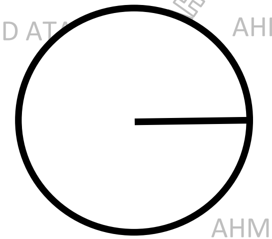
a) *radius changes at a constant rate*

b) *radius changes by rate 4*

c) *rat of radius decreasing by 2*

d) *radius changes by rate* $\frac{4}{3}$

Suppose a forest fire spreads in a circle with radius changing at a rate of 5 feet per minute. When the radius reaches 200 feet, at what rate is the area of the burning region increasing?



$a)$ $2000\ ft^2/min$

$b)$ $2000\pi\ ft/min$

$c)$ $2000\pi\ ft^2/min$

$d)$ $1500\pi\ ft^2/min$

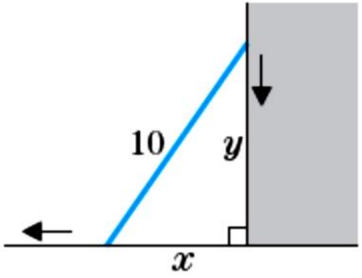
A 10-feet ladder leans against the side of a building If the bottom of the ladder is pulled away from the wall at the rate of 3 ft/s and the ladder remains in contact with the wall, find the rate at which the top of the ladder is dropping when the bottom is 6 feet from the wall.

$a)\ y'(t) = 2.25\ ft/sec$

$b)\ y'(t) = -2.25\ ft/sec$

$c)\ y'(t) = 3.25\ ft/sec$

$d)\ y'(t) = -3.25\ ft/sec$



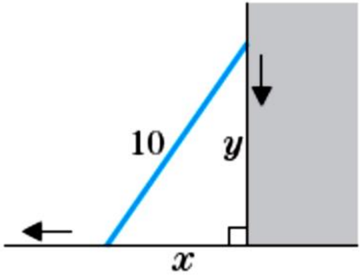
**A 10-feet ladder leans against the side of a building If the bottom of the ladder is pulled away from the wall at the rate of 3 ft/s and the ladder remains in contact with the wall,**
**Find the rate at which the angle between the ladder and the horizontal is changing when the bottom of the ladder is 6 feet from the wall.**

a) $\theta'(t) = \frac{3}{8}\ rad/sec$

b) $\theta'(t) = -\frac{5}{8}\ rad/sec$

c) $\theta'(t) = -\frac{3}{8}\ rad/sec$

d) $\theta'(t) = -\frac{7}{8}\ rad/sec$



Suppose that $C(x) = 0.02x^2 + 2x + 4000$

is the total cost (in AED) for a company to produce $x$ units of a certain product.

**Compute** the marginal cost at $x = 100$

$a)$ $2\ AED$

$b)$ $5.98\ AED$

$c)$ $4\ AED$

$d)$ $6\ AED$

Suppose that $C(x) = 0.02x^2 + 2x + 4000$

is the total cost (in AED) for a company to produce $x$ units of a certain product.

**Compute** actual cost of producing the 100th unit

$a)$ $2\ AED$

$b)$ $5.98\ AED$

$c)$ $4\ AED$

$d)$ $6\ AED$

*Find the general antiderivative*

$$\int 2secxtanxdx$$

a) $tanx + secx + c$

b) $secx - tanx + c$

c) $tanx - secx + c$

d) $2secx + c$

*Find the general antiderivative*

$$\int 5sec^2x dx$$

$a) -5tanx + c$

$b)\ 5tanx + c$

$c)\ 5\ tanxsecx + c$

$d)\ 5secx + c$

27

*Find the general antiderivative*

$$\int \frac{4\cos x}{\sin^2 x}\,dx$$

a) $-4\csc x + c$

b) $4\csc x + c$

c) $4\sec x + c$

d) $-4\sec x + c$

*Find the general antiderivative*

$$\int \frac{\cos x}{\sin x}\,dx$$

$a)\ -\ln|\sin x| + c$

$b)\ \ln|\sin x| + c$

$c)\ \ln|\cos x| + c$

$d)\ -\ \ln|\cos x| + c$

29

*Find the general antiderivative*

$$\int \frac{4x}{x^2+4}\,dx$$

a) $\frac{1}{2} ln|x^2+4| + c$

b) $ln|x^2+4| + c$

c) $2ln|x^2+4| + c$

d) $2ln|x+4| + c$

30

*Find the general antiderivative*

$$\int \frac{e^x}{e^x + 3}\, dx$$

a) $ln|e^x + 3| + c$

b) $ln|e^x| + c$

c) $ln|e^x + 3| + c$

d) $ln|e^{-x} + 3| + c$