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1. ()
Evaluat

(a) $\lim_{x \rightarrow 1} \frac{1}{x}$

$$= \frac{1}{1}$$

$$= \lim_{x \rightarrow 1} \frac{1}{x}$$

$$= \lim_{x \rightarrow 1} \frac{1}{x}$$

$$= \frac{1}{1}$$

(b) $\lim_{x \rightarrow 2} (2x^2 - 8)$

$$2x^2 - 8$$

So $\lim_{x \rightarrow 2} (2x^2 - 8)$

$$= 0$$

$$\frac{3}{x^2}$$

As

Also,

So

So

X

3.

Find t
should

(a)

$$f'(t)$$

=

(b)

$$f'(x)$$

=

$$= \frac{1}{3}$$

$$= \boxed{\frac{1}{3x}}$$

3

(c)

11

(d)

11

11

11

At

The

TV

Th

5.

(a)

(b)

(c)

$$\frac{d}{dx}$$

So

6. (5 marks)

If the function $f(x) =$

the absolute maximum at

$$f'(x) = 6x^2$$

so $f'(x) = 0$ if

The critical number

is in the

$$f(0) = 2(0)^3 -$$

At the endpoints:

$$f(-2) = 2(-2)$$

$$f(1) = 2(1)^3$$

so the absolute

and the absolute

7. (12)

For the fu

(a)

(b)

(c) t

(d) t

(e) t

(f) t

Use the ab

Note:

(a) y-int

so \square

x-inte

so

(b) horiz

so $\lim_{x \rightarrow \infty}$

and $\lim_{x \rightarrow -}$

so $\square y =$

vertical

$\lim_{x \rightarrow -1^-} f(x)$

$\lim_{x \rightarrow -1^+} f(x) =$

7

so $\square >$

(c)

Interv

$x < -1$

$-1 < x <$

$x >$

(d) 7

(e)

Interv

$x < -1$

$-1 < x <$

$x > 2$

(f) Th

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of fenc

Let x

(in m)

Let y

(in m)

The area

The area

so $F(x)$

$F'(x) =$

so $F'(x)$

If $x < 50,$

If $x > 50,$

so $F(x)$

The total
of the fr

10. (8 marks)

Evaluate the following

$$(a) \int (x^{4/3} + 4) dx$$

$$= \frac{x^{7/3}}{\left(\frac{7}{3}\right)} +$$

$$= \boxed{\frac{3}{7} x^{7/3} + 4x}$$

$$(b) \int \frac{2e^x}{e^x + 5} dx$$

let $u = e^x + 5$

so $\int \frac{2e^x}{e^x + 5} dx$

$$= 2 \int \frac{1}{u} du$$

$$= \boxed{2 \ln|u| + C}$$

11. (8 m)

Evaluate the

$$(a) \int_1^4 (3x)$$

$$\int (3x$$

$$= 3 ($$

$$= [$$

$$\text{so } \int_1^4 ($$

$$= \left(\frac{3}{2} (4)^2 +$$

$$(b) \int_1^2 \frac{6}{\sqrt{x^3}}$$

Let u

$$\text{so } \int \frac{6x^2 + u}{\sqrt{x^3 +}}$$

$$= 2$$

$$\text{so } \int_1^2 \frac{6x^2}{\sqrt{x^3 +}}$$

$$= 4$$

12

A

t=

thr

the

At

V_c

So

We