

1. (1 pt) Let $\lim_{x \rightarrow a} h(x) = 0$, $\lim_{x \rightarrow a} g(x) = 9$, $\lim_{x \rightarrow a} f(x) = 7$.
Find following limits if they exist. If not, enter DNE ('does not exist') as your answer.

- ___1. $\lim_{x \rightarrow a} h(x) + g(x)$
- ___2. $\lim_{x \rightarrow a} h(x) - g(x)$
- ___3. $\lim_{x \rightarrow a} h(x) * f(x)$
- ___4. $\lim_{x \rightarrow a} \frac{h(x)}{g(x)}$
- ___5. $\lim_{x \rightarrow a} \frac{h(x)}{f(x)}$
- ___6. $\lim_{x \rightarrow a} \frac{f(x)}{h(x)}$
- ___7. $\lim_{x \rightarrow a} \sqrt{g(x)}$
- ___8. $\lim_{x \rightarrow a} g(x)^{-1}$
- ___9. $\lim_{x \rightarrow a} \frac{1}{g(x) - f(x)}$

Answer(s) submitted:

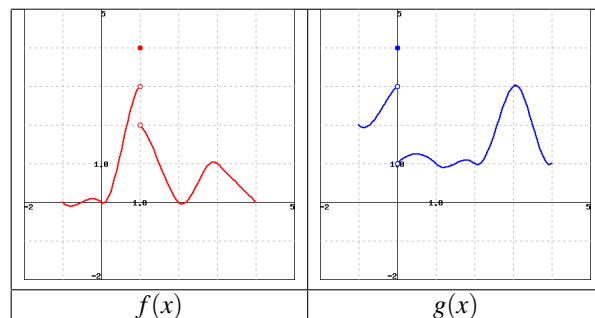
- 9
- -9
- 0
- 0
- 0
- DNE
- 3
- 1/9
- 1/2

(correct)

Correct Answers:

- 9
- -9
- 0
- 0
- 0
- DNE
- 3
- 0.111111111111111
- 0.5

2. (1 pt)



The graphs of $f(x)$ and $g(x)$ are given above. Use them to evaluate each quantity below. Write *DNE* if the limit or value does not exist (or if it's infinity).

- ___1. $f(g(0))$
- ___2. $\lim_{x \rightarrow 0^-} [f(x)/g(x)]$
- ___3. $\lim_{x \rightarrow 0^-} [f(x)g(x)]$
- ___4. $f(0)g(0)$

Answer(s) submitted:

- 0
- 0
- 0
- 0

(correct)

Correct Answers:

- 0
- 0
- 0
- 0

3. (1 pt) Evaluate the limit

$$\lim_{\theta \rightarrow (\pi/2)} 10\theta \sin \theta$$

Answer(s) submitted:

- 5pi

(correct)

Correct Answers:

- 15.707963267949

4. (1 pt) Evaluate the limit

$$\lim_{x \rightarrow 10} \frac{x^2 + 13x + 30}{x + 10}$$

Answer(s) submitted:

- 13

(correct)

Correct Answers:

- 13

5. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow 2} \frac{x^2 - 7x + 10}{x^2 + 3x - 10}$$

Answer(s) submitted:

- -3/7

(correct)

Correct Answers:

- -0.428571428571429

6. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow 1} \frac{x^2 - x + 6}{x - 1}$$

Answer(s) submitted:

- DNE

(correct)

Correct Answers:

- DNE

7. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow 8} \frac{x^2 - 8x}{x^2 - 6x - 16}$$

Answer(s) submitted:

- 4/5

(correct)

Correct Answers:

- 0.8

8. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE .

$$\lim_{t \rightarrow -8} \frac{t^2 - 64}{2t^2 + 21t + 40}$$

Answer = _____

Answer(s) submitted:

- 16/11

(correct)

Correct Answers:

- 1.45454545454545

9. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow -8} \frac{x^2 - 6x}{x^2 + 2x - 48}$$

Answer(s) submitted:

- DNE

(correct)

Correct Answers:

- DNE

10. (1 pt) Find (in terms of the constant a)

$$\lim_{h \rightarrow 0} \frac{2(a+h)^2 - 2a^2}{h}$$

Limit = _____

Answer(s) submitted:

- 4a

(correct)

Correct Answers:

- 2*2*a

11. (1 pt) Find (in terms of the constant a)

$$\lim_{h \rightarrow 0} \frac{\sqrt{7(a+h)} - \sqrt{7a}}{h}$$

Limit = _____

Answer(s) submitted:

- sqrt (7) / (2sqrt (a))

(correct)

Correct Answers:

- 0.5*sqrt (7/a)

12. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow 3} \frac{x - 3}{x^3 - 27}$$

Answer(s) submitted:

- 1/27

(correct)

Correct Answers:

- 0.037037037037037

13. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

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

Answer(s) submitted:

- 0

(correct)

Correct Answers:

- 0

14. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{x \rightarrow 34} \frac{\sqrt{x+2}-6}{x-34}$$

Answer(s) submitted:

- 1/12

(correct)

Correct Answers:

- 0.0833333333333333

15. (1 pt) Find (in terms of the constant a)

$$\lim_{h \rightarrow 0} \frac{\frac{4}{a+h} - \frac{4}{a}}{h}$$

Limit = _____

Answer(s) submitted:

- $-4/a^2$

(correct)

Correct Answers:

- $-4/(a^2)$

16. (1 pt) Evaluate the limit

$$\lim_{b \rightarrow 5} \frac{\frac{1}{b} - \frac{1}{5}}{b-5}$$

Answer(s) submitted:

- -1/25

(correct)

Correct Answers:

- -0.04

17. (1 pt) Evaluate the limit. If the limit does not exist, enter DNE.

$$\lim_{t \rightarrow 0} \left(\frac{1}{t} - \frac{1}{t^2 + t} \right)$$

Answer(s) submitted:

- 1

(correct)

Correct Answers:

- 1

18. (1 pt) If

$$0x + 0 \leq f(x) \leq x^2 - 2x + 1$$

determine $\lim_{x \rightarrow 1} f(x) =$ _____

What theorem did you use to arrive at your answer?

Answer(s) submitted:

- 0
-

(correct)

Correct Answers:

- 0
- The Squeeze theorem

19. (1 pt) Let

$$f(x) = \begin{cases} -x & \text{if } x \leq -3 \\ 9 - x^2 & \text{if } -3 < x < 3 \\ x - 3 & \text{if } x > 3 \end{cases}$$

Sketch the graph of this function and find following limits if they exist (if not, enter DNE).

___1. $\lim_{x \rightarrow 3^+} f(x)$

___2. $\lim_{x \rightarrow 3} f(x)$

___3. $\lim_{x \rightarrow 0} f(x)$

___4. $\lim_{x \rightarrow -3^-} f(x)$

___5. $\lim_{x \rightarrow -3} f(x)$

___6. $\lim_{x \rightarrow -3^+} f(x)$

Answer(s) submitted:

- 0
- 0
- 9
- 3
- DNE
- 0

(correct)

Correct Answers:

- 0
- 0
- 9
- 3
- DNE
- 0

20. (1 pt) Let

$$F(x) = \frac{x^2 - 81}{|x - 9|}$$

Sketch the graph of this function and find the following limits if they exist (if not, enter DNE).

___1. $\lim_{x \rightarrow 9^+} F(x)$

___2. $\lim_{x \rightarrow 9^-} F(x)$

___3. $\lim_{x \rightarrow 9} F(x)$

Answer(s) submitted:

- 18
- -18
- DNE

(correct)

Correct Answers:

- 18
- -18
- DNE

