HW 1.1, 1.2, 1.3 (20276609)
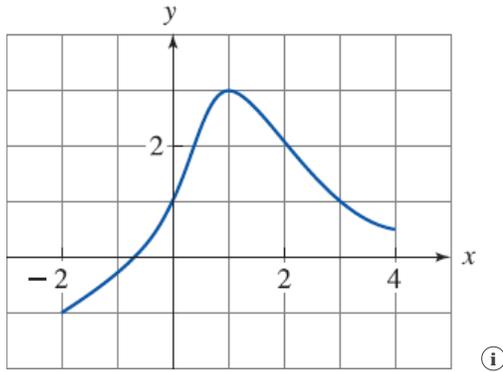
Due: Sun, Jun 19, 2022 11:59 PM PDT

Question   1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

**1.**   Question Details   SCalcET9 1.XP.1.001. [4563824]

The graph of a function f is given in the figure.

(a)   Find the value of $f(1)$.

(b)   Estimate the value of $f(-1)$.

(c)   For what values of x is $f(x) = 1$? (Enter your answers as a comma-separated list.)

(d)   Estimate the value of x such that $f(x) = 0$.

$x =$

(e)   State the domain and range of f. (Enter your answers in interval notation.)

domain

range

(f)   On what interval is f increasing? (Enter your answer using interval notation.)

2. Question Details

SCalcET9 1.1.015. [4703256]

Consider the following graph.
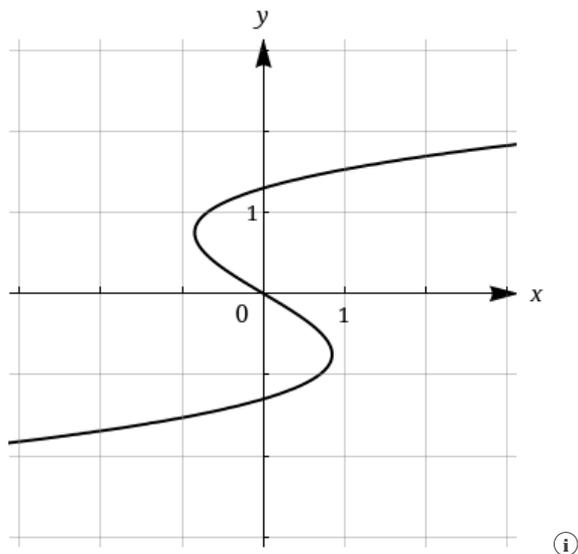
Determine whether the curve is the graph of a function of *x*.

○ Yes, it is a function.

○ No, it is not a function.

If it is, state the domain and range of the function. (Enter your answers using interval notation. If it is not a function, enter NAF in all blanks.)

domain [   ]

range [   ]

3.   Question Details   SCalcET9 1.1.018. [4703250]

Consider the following graph.

Determine whether the curve is the graph of a function of x.

○ Yes, it is a function.

○ No, it is not a function.

If it is, state the domain and range of the function. (Enter your answers using interval notation. If it is not a function, enter NAF in all blanks.)
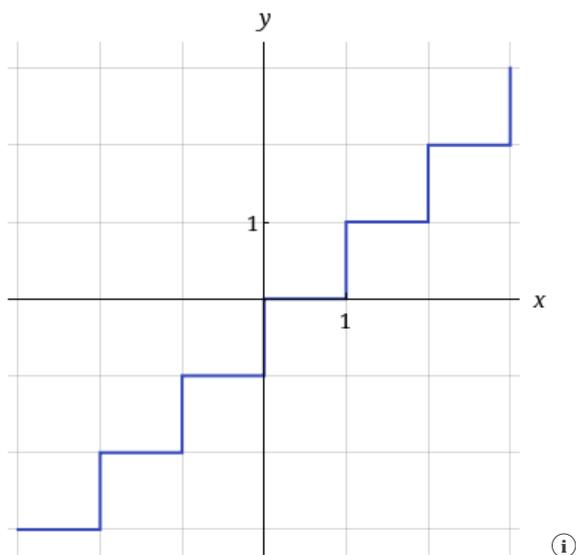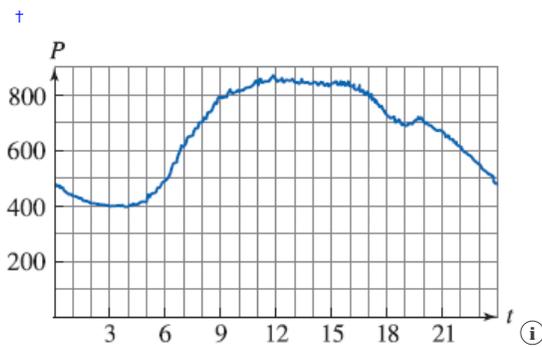
domain   [   ]

range   [   ]

4.   Question Details   SCalcET9 1.1.023. [4703216]

The graph shows the power consumption for a day in September in San Francisco where P is measured in megawatts and t is measured in hours starting at midnight.

†

(a) What was the power consumption (in MW) at 3 a.m.?

[_____] MW

What was the power consumption (in MW) at 9 p.m.?

[_____] MW

(b) When was the power consumption the lowest?

○ midnight

○ noon

○ 4 a.m.

○ 2 p.m.

○ 6 p.m.

When was it the highest?

○ 2 p.m.

○ 4 a.m.

○ midnight

○ noon

○ 6 p.m.

Do these times seem reasonable?

○ Yes

○ No

5.   Question Details   SCalcET9 1.1.033. [4703274]

If $f(x) = 2x^2 - x + 4$, find the following.

$f(3) =$ [   ]

$f(-3) =$ [   ]

$f(a) =$ [   ]

$f(-a) =$ [   ]

$f(a + 1) =$ [   ]

$2f(a) =$ [   ]

$f(2a) =$ [   ]

$f(a^2) =$ [   ]

$[f(a)]^2 =$ [   ]

$f(a + h) =$ [   ]

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6.   Question Details   SCalcET9 1.1.036.MI. [4563945]

Evaluate the difference quotient for the given function. Simplify your answer.

$$f(x) = -x^3, \quad \frac{f(a + h) - f(a)}{h}$$

[   ]

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7.   Question Details   SCalcET9 1.XP.1.003. [4701489]

Evaluate the difference quotient for the given function. Simplify your answer.

$$f(x) = \frac{x + 5}{x + 1}, \quad \frac{f(x) - f(3)}{x - 3}$$

[   ]

8.   Question Details   SCalcET9 1.1.041. [4563876]

Find the domain of the function. (Enter your answer using interval notation.)

$$f(t) = \sqrt[3]{2t - 4}$$

9.   Question Details   SCalcET9 1.XP.1.016. [4701522]
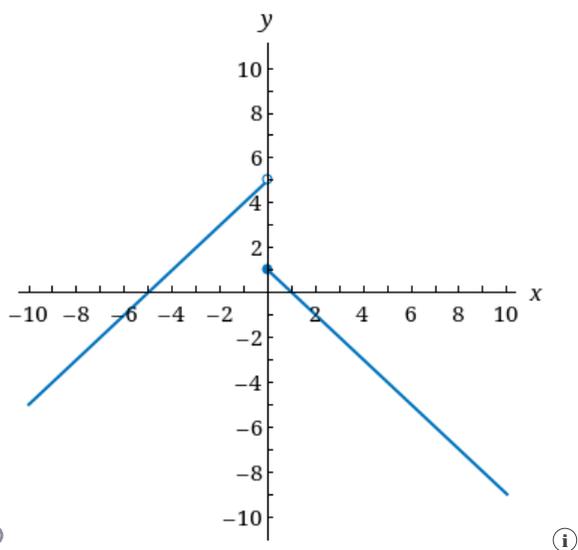
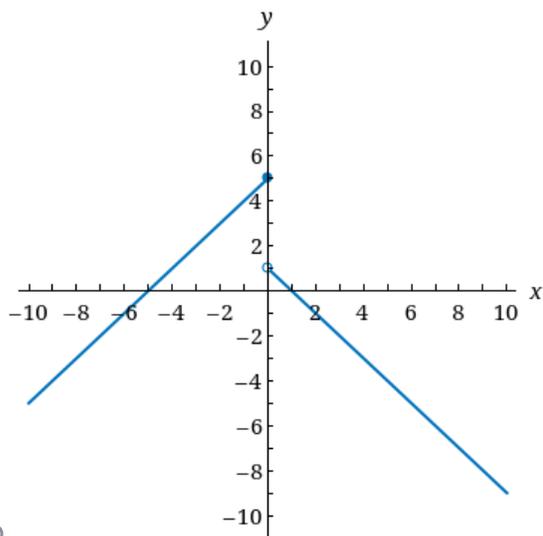Evaluate $f(-7)$, $f(0)$, and $f(8)$ for the piecewise defined function.

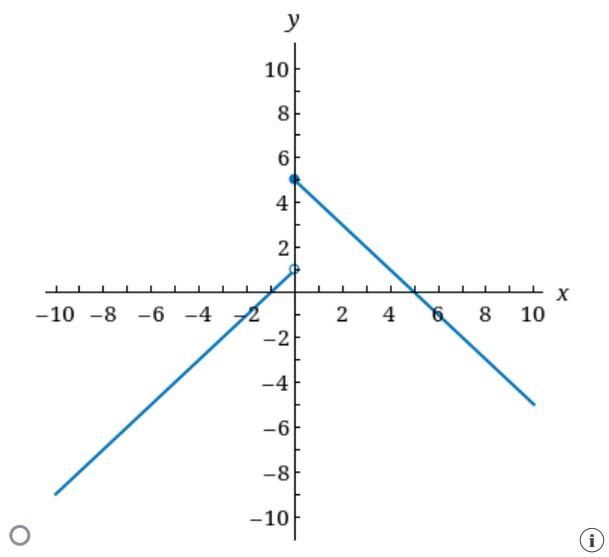$$f(x) = \begin{cases} x + 5 & \text{if } x < 0 \\ 1 - x & \text{if } x \geq 0 \end{cases}$$

$f(-7) = $ ⬚

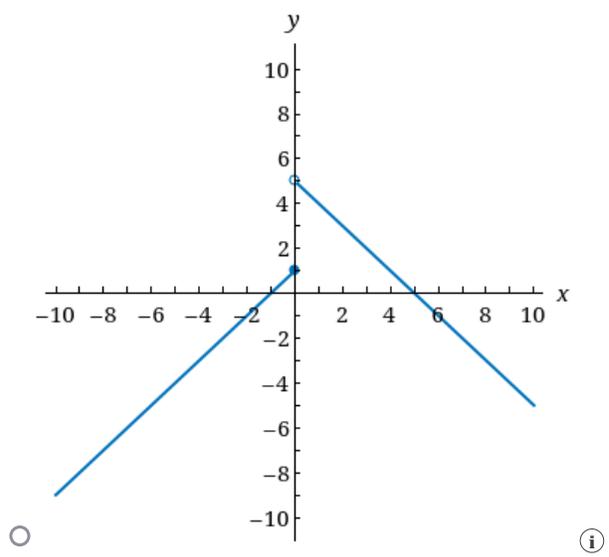$f(0) = $ ⬚

$f(8) = $ ⬚

Sketch the graph of the function.

○

○

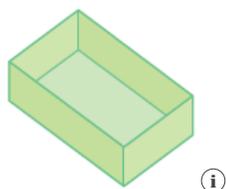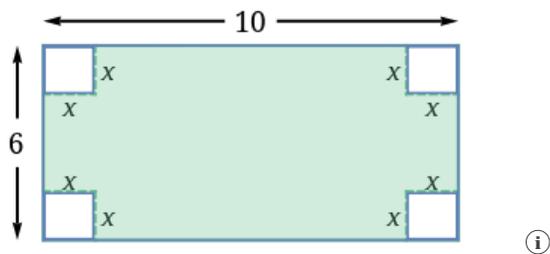**10.**   Question Details   SCalcET9 1.1.071. [4703291]
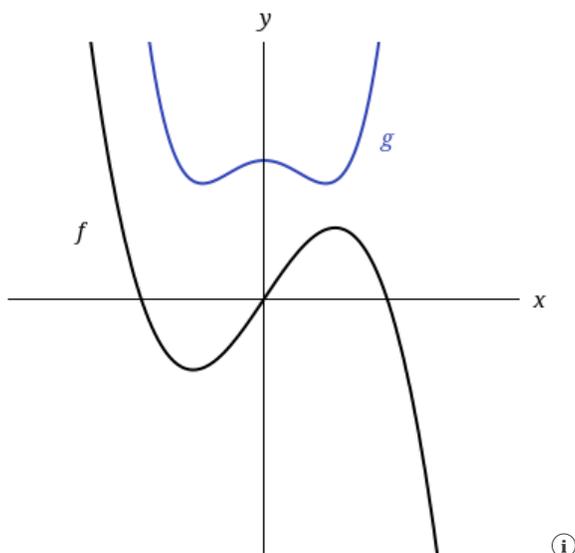
A box with an open top is to be constructed from a rectangular piece of cardboard with dimensions 6 in. by 10 in. by cutting out equal squares of side *x* at each corner and then folding up the sides as shown in the figure. Express the volume *V* of the box as a function of *x*.

V(*x*) = ⬚

11. Question Details
SCalcET9 1.1.077. [4703290]

Graphs of *f* and *g* are shown.

Is *f* even, odd, or neither?

○ even

○ odd

○ neither

Explain your reasoning.

○ It is symmetric about the origin.

○ It is symmetric with respect to the *y*-axis.

○ It is symmetric with respect to the *x*-axis.

○ It is not symmetric about the origin or the *y*-axis.

Is *g* even, odd, or neither?

○ even

○ odd

○ neither

Explain your reasoning.

○ It is symmetric about the origin.

○ It is symmetric with respect to the *y*-axis.

○ It is symmetric with respect to the *x*-axis.

○ It is not symmetric about the origin or the *y*-axis.

12.   Question Details   SCalcET9 1.1.076. [4563881]   -

(a)   If the point (8, 3) is on the graph of an even function, what other point must also be on the graph?

   (x, y) = ([   ])

(b)   If the point (8, 3) is on the graph of an odd function, what other point must also be on the graph?

   (x, y) = ([   ])

13.   Question Details   SCalcET9 1.1.081. [4703195]   -

A graphing calculator is recommended.

Determine whether f is even, odd, or neither. Use technology to check your answer visually.

$$f(x) = \frac{x}{x^2 + 9}$$

○ even

○ odd

○ neither

14.   Question Details   SCalcET9 1.XP.1.017. [4553711]

Find the domain of the function. (Enter your answer using interval notation.)

$$f(x) = \begin{cases} x + 9 & \text{if } x < 0 \\ 1 - x & \text{if } x \geq 0 \end{cases}$$

Sketch the graph of the function.

○

○

15.   Question Details   SCalcET9 1.XP.1.019. [4554067]

Find the domain of the function. (Enter your answer using interval notation.)

$$f(x) = \begin{cases} x + 12 & \text{if } x < -4 \\ -2x & \text{if } |x| \leq 4 \\ -8 & \text{if } x > 4 \end{cases}$$

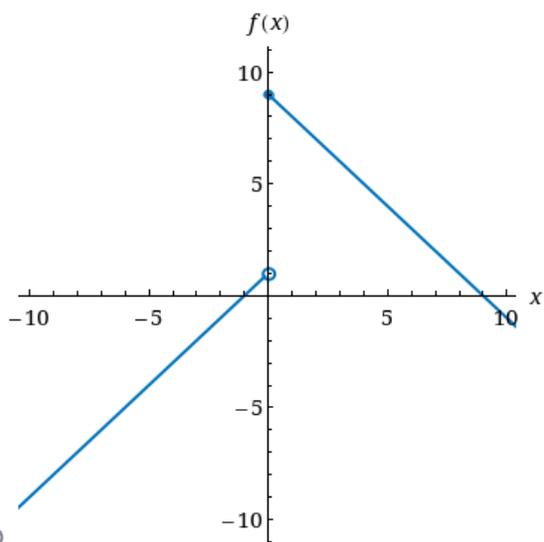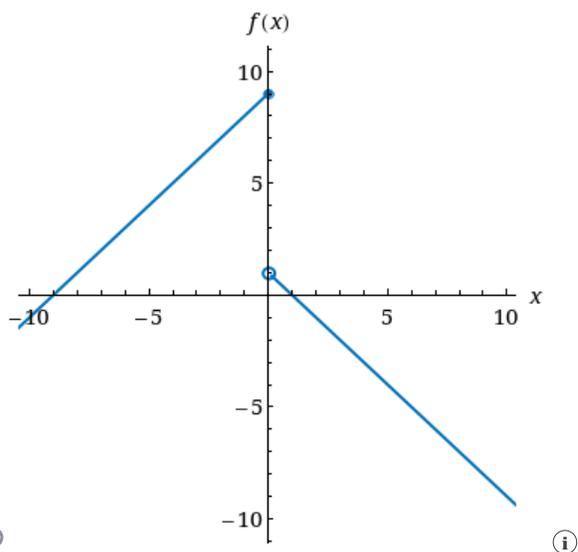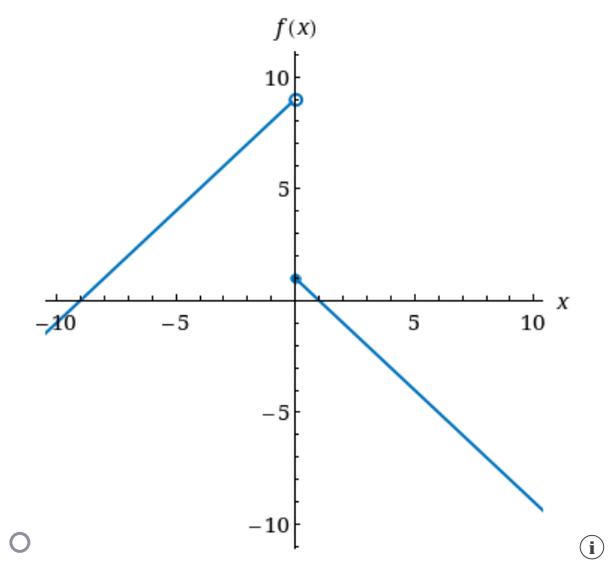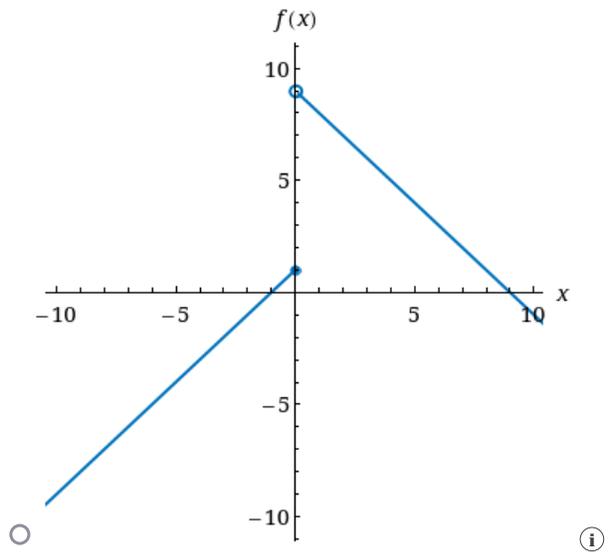Sketch the graph of the function.

○

○
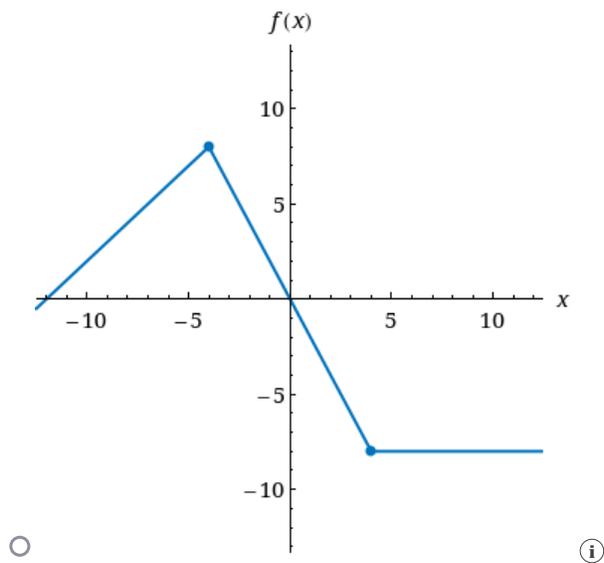
16.   Question Details   SCalcET9 1.XP.1.002. [4703205]

The graph shown gives a salesman's distance from his home as a function of time on a certain day. Describe in words what the graph indicates about his travels on this day.
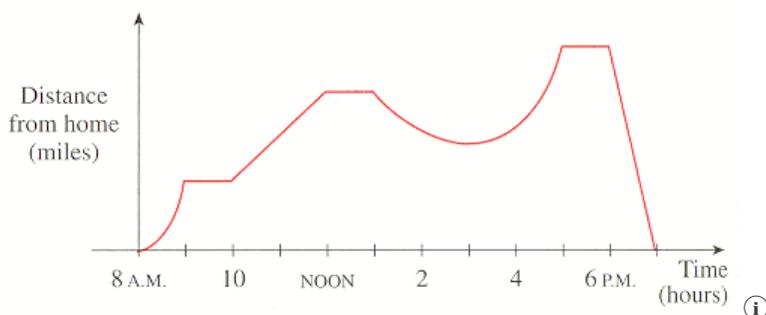
At 8:00 AM the salesman is [---Select--- ▾] .

From 8:00 AM until 9:00 AM the salesman is [---Select--- ▾] .

From 9:00 AM until 10:00 AM the salesman is [---Select--- ▾] .

From 10:00 AM until noon the salesman is [---Select--- ▾] .

From noon until 1:00 PM the salesman is [---Select--- ▾] .

From 1:00 PM until 3:00 PM the salesman is [---Select--- ▾] .

From 3:00 PM until 5:00 PM the salesman is [---Select--- ▾] .

From 5:00 PM until 6:00 PM the salesman is [---Select--- ▾] .

From 6:00 PM until 7:00 PM the salesman is [---Select--- ▾] .

At 7:00 PM the salesman is [---Select--- ▾] .

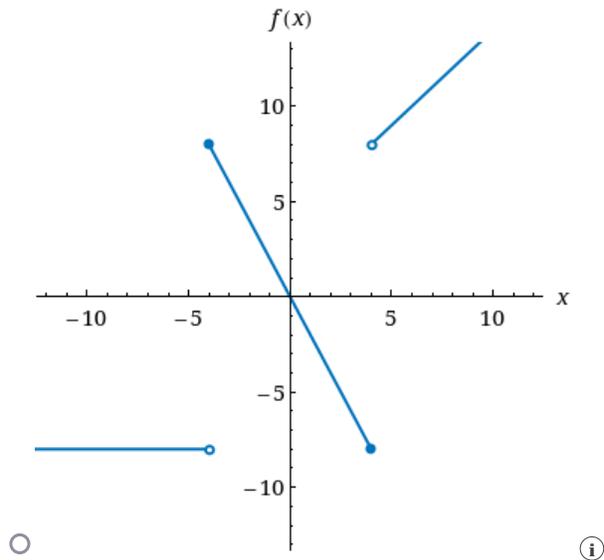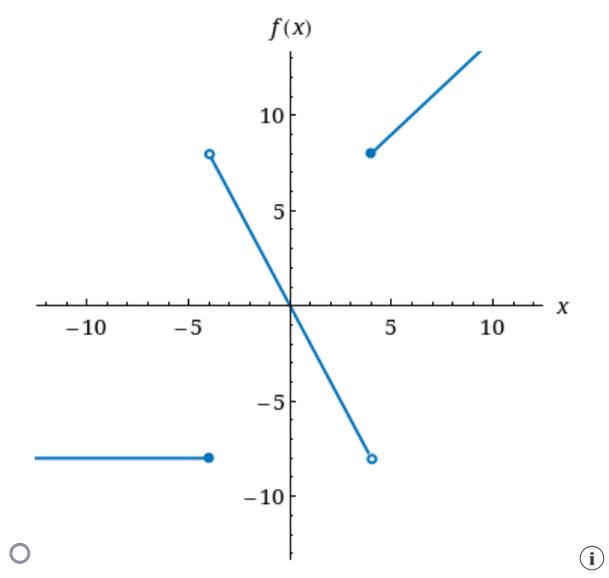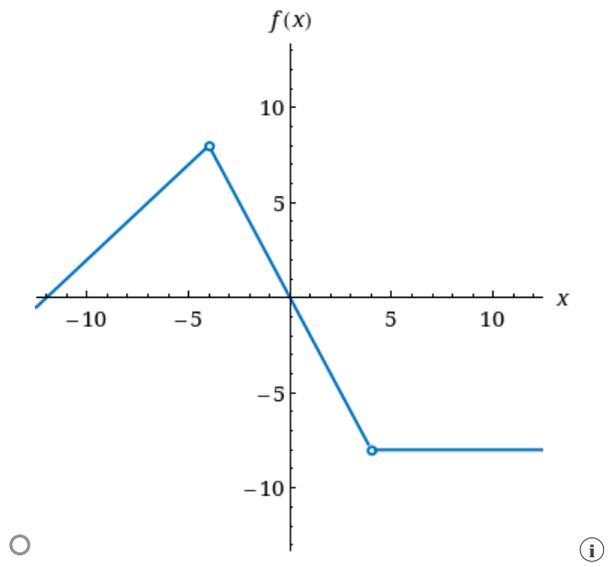**17.**   Question Details   SCalcET9 1.XP.1.008. [4553932]

Find the domain of the function. (Enter your answer using interval notation.)

$$f(t) = t^2 - 8t$$

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18. Question Details   SCalcET9 1.XP.2.002. [4701532]

Classify each function as a power function, root function, polynomial (state its degree), rational function, algebraic function, trigonometric function, exponential function, or logarithmic function.

(a) $f(x) = \log_2(x)$

○ power function

○ root function

○ polynomial with degree 2

○ rational function

○ algebraic function

○ trigonometric function

○ exponential function

○ logarithmic function

(b) $g(x) = \sqrt[3]{x}$

○ power function

○ root function

○ polynomial with degree 3

○ rational function

○ algebraic function

○ trigonometric function

○ exponential function

○ logarithmic function

(c) $h(x) = \dfrac{2x^3}{4 - x^2}$

○ power function

○ root function

○ polynomial with degree 3

○ rational function

○ algebraic function

○ trigonometric function

○ exponential function

○ logarithmic function

(d) $u(t) = 1 - 1.1t + t^2$

○ power function

○ root function

○ polynomial with degree 2

○ rational function

○ algebraic function

○ trigonometric function

○ exponential function

○ logarithmic function

(e) $v(t) = 2^t$

○ power function

     ○ root function

     ○ polynomial with degree 2

     ○ rational function

     ○ algebraic function

     ○ trigonometric function

     ○ exponential function

     ○ logarithmic function

(f) $w(\theta) = \sin(\theta) \cos^2(\theta)$

     ○ power function

     ○ root function

     ○ polynomial with degree 2

     ○ rational function

     ○ algebraic function

     ○ trigonometric function

     ○ exponential function

     ○ logarithmic function

19.   Question Details   SCalcET9 1.2.004. [4703236]

Match each equation with its graph. (Do not use technology.)
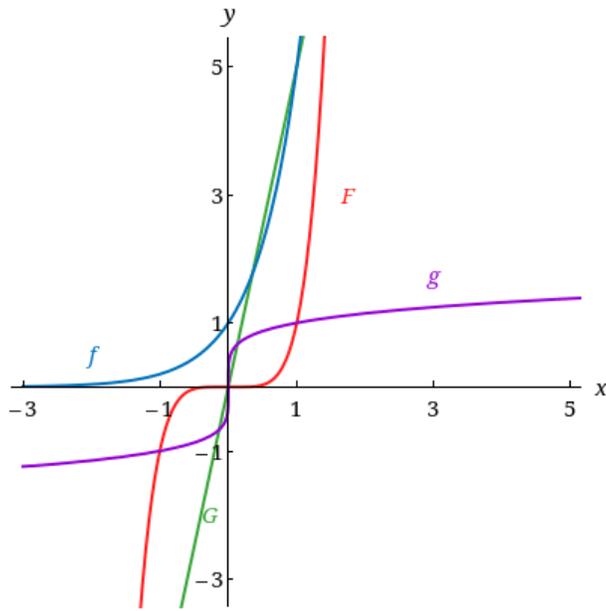
(a) $y = 5x$

    ⭘ f

    ⭘ F

    ⭘ g

    ⭘ G

(b) $y = 5^x$

    ⭘ f

    ⭘ F

    ⭘ g

    ⭘ G

(c) $y = x^5$

    ⭘ f

    ⭘ F

    ⭘ g

    ⭘ G

(d) $y = \sqrt[5]{x}$

    ⭘ f

    ⭘ F

    ⭘ g

    ⭘ G

20.   Question Details   SCalcET9 1.3.002. [4563942]

Explain how each graph is obtained from the graph of $y = f(x)$.

(a) $y = f(x) + 8$

○ Stretch the graph horizontally and vertically by a factor of 8.

○ Shift the graph 8 units upward.

○ Shift the graph 8 units to the right.

○ Shift the graph 8 units downward.

○ Shift the graph 8 units to the left.

(b) $y = f(x + 8)$

○ Shift the graph 8 units to the left.

○ Shift the graph 8 units downward.

○ Shift the graph 8 units to the right.

○ Stretch the graph horizontally and vertically by a factor of 8.

○ Shift the graph 8 units upward.

(c) $y = 8f(x)$

○ Shift the graph 8 units to the left.

○ Stretch the graph horizontally and vertically by a factor of 8.

○ Shrink the graph horizontally by a factor of 8.

○ Shift the graph 8 units upward.

○ Stretch the graph vertically by a factor of 8.

(d) $y = f(8x)$

○ Shrink the graph horizontally by a factor of 8.

○ Shift the graph 8 units upward.

○ Stretch the graph vertically by a factor of 8.

○ Shift the graph 8 units to the left.

○ Stretch the graph horizontally and vertically by a factor of 8.

(e) $y = -f(x) - 1$

○ First reflect the graph about the x-axis, and then shift it 1 unit left.

○ First reflect the graph about the y-axis, and then shift it 1 unit upward.

○ First reflect the graph about the y-axis, and then shift it 1 unit downward.

○ First reflect the graph about the x-axis, and then shift it 1 unit downward.

○ First reflect the graph about the x-axis, and then shift it 1 unit upward.

(f) $y = 8f\left(\dfrac{1}{8}x\right)$

○ Stretch the graph horizontally and vertically by a factor of 8.

○ Stretch the graph horizontally by a factor of 8.

○ Shrink the graph horizontally by a factor of 8.

○ Stretch the graph vertically by a factor of 8.

○ Shrink the graph horizontally and vertically by a factor of 8.

21.   Question Details   SCalcET9 1.XP.3.017. [4701541] _

Find each of the following functions and state their domains. (Enter the domains in interval notation.)

$$f(x) = 2x + 7, \quad g(x) = x^2 + x$$

(a) $f \circ g$

$(f \circ g)(x) =$ [   ]

domain [   ]

(b) $g \circ f$

$(g \circ f)(x) =$ [   ]

domain [   ]

(c) $f \circ f$

$(f \circ f)(x) =$ [   ]

domain [   ]

(d) $g \circ g$

$(g \circ g)(x) =$ [   ]

domain [   ]

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22.   Question Details   SCalcET9 1.3.041. [4563912] _

Find $f \circ g \circ h$.

$$f(x) = 8x - 9, \quad g(x) = \sin(x), \quad h(x) = x^2$$

$(f \circ g \circ h)(x) =$ [   ]

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23.   Question Details   SCalcET9 1.3.043.MI. [4563776] _

Find $f \circ g \circ h$.

$$f(x) = \sqrt{x - 9}, \quad g(x) = x^2, \quad h(x) = x^3 + 8$$

$(f \circ g \circ h)(x) =$ [   ]

24.   Question Details   SCalcET9 1.XP.3.030. [4563773]

Use the table to evaluate each expression.

x	1	2	3	4	5	6
f(x)	3	1	4	2	5	3
g(x)	6	3	1	5	4	1

(a) $f(g(1))$

[ ]

(b) $g(f(1))$

[ ]

(c) $f(f(1))$

[ ]

(d) $g(g(1))$

[ ]

(e) $(g \circ f)(3)$

[ ]

(f) $(f \circ g)(6)$
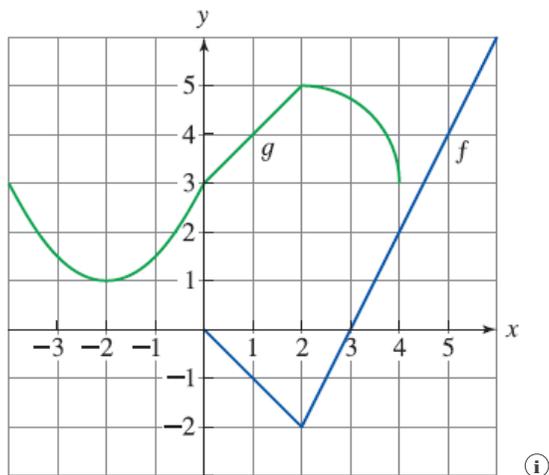
[ ]

25.   Question Details   SCalcET9 1.3.057. [4703281]

Use the given graphs of *f* and *g* to evaluate each expression, or if the expression is undefined, enter UNDEFINED.

(a) $f(g(2))$

[ ]

(b) $g(f(0))$

[ ]

(c) $(f \circ g)(0)$

[ ]

(d) $(g \circ f)(6)$

[ ]

(e) $(g \circ g)(-2)$

[ ]

(f) $(f \circ f)(4)$

[ ]

Assignment Details

Name (AID): **HW 1.1, 1.2, 1.3 (20276609)**   **Feedback Settings**
Submissions Allowed: **10**   Before due date
Category: **Homework**   After due date
Code:
Locked: **Yes**
Author: **Mirzaagha, Abe (** MirzaaM@arc.losrios.edu **)**
Last Saved: **Feb 22, 2022 08:57 PM PST**
Permission: **Protected**
Randomization: **Person**
Which graded: **Last**