Precalculus composition of functions worksheet answers pdf

If you're seeing this message, that means we have problems loading external resources on our website. If you are behind a web filter, please make sure that the *.kastatic.org and *.kasandbox.org are unblocked. In this section, you will: Combine function using algebraic operation. Create a new function by composition of functions. Evaluate composite function. Get the domain of a composite function. Decompose a composite function in its element function. Supposing we want to calculate how much it costs to heat a home on a particular day of the year. The heat price of a household will depend on the average daily temperature, and in turn, the average daily temperature depends on the particular day of the year. Note that how we have just defined two relationships: The price depends on the temperature, and the temperature depends on the day. Using descriptive variables, we cannot note these two functions. Function C(T) provides cost c of heating a house for a daily average temperature of T degree Celsius. The T function (d) provides the average daily temperature of d days of the year. For any given day, Price =C(T) means that the price depends on the temperature, which in turn depends on the day of the year. So we can evaluate the cost function of T temperature (d). For example, we were able to figure out T(5) to determine the average daily temperature on the 5th day of the year. Then we were able to evaluate the cost function at that temperature. We would write C (T (5)). By combining these two relationships into one function, we have done composing function, which is the focus of this section. Combine function by using composing algebraic function is only one way to combine existing functions. Another way is to carry out the usual algebraic operations on functions, such as addition, subtraction, multiplication and division. We do this by performing the operations and output functions, defining the result as the output of our new function. Supposing we need to add two number columns representing a spouse with separate income every year over a two-year period, and the result being income from their total household. We want to do this for each year, add only revenue this year and then collect all the data in a new column. If you (y) are the wife's income and h(y) is the spouse's income in year y, and we want T to represent the total income, then we can define a new function. T(y) = h(y) + w(y) If this holds true for each year, Then we can focus on the relationship between the functions without reference to a year and write T = H + Just like this sum of functions, we can define differences, products, and report functions for any pairs of functions which have the same type of input (not necessarily numbers) and also their output types (which are to be numbers for that algebraic operation can be applied to them, and that must have the same units or units as we add to the In this way, we may think of adding, subtracting, multiplying, and dividing functions. For two functions f(x) and g (x) with actual number output, we define new function f + g, f−g, fg, and f by their relationship (f + g) (x) = f(x) + g(x) (f−g) (x)=f(x)−g(x)(fg)(x)=f(x)g(x) (f)=f(x)=f(x)g(x) Perform Algebraic Operations on Function Find and Simplify the functions (g−f) (x) and (g)(f)(x)(x) (x) (x) , assign f(x) = x−1 and g (x) = x^2 −1. Are they the same function? Start by writing the general form, and then replacing the given function. (g−f) (x) = g (x) −f (x) (g−f) (x) = x^2 −1− (x−1) = x^2 −x = x (x−1) (f) (x) = g (x) f (x) (f) (x) = x^2 −1 x−1 = (x + 1) (x) (x−1) −x where x≠1 = x + 1 name, the functions are not the same. Note: For (g)(x), the condition x≠1 is needed because when x = 1, the denominator is equal to 0, which makes the function undefined. Find and simplify the functions (fg)(x) and (f−g)(x). f(x) = x−1 and g (x) = x^2 −1 Are they the same function? (flip) (x) = f (x) g (x) = (x−1) (x^2 −1) = x^3 − x^2 −x + 1 (f−g) (x) = f(x) −g (x) = (x−1) − (x^2 −1) = x − x^2 Name, the functions are not the same. Perform algebraic operations on the combined functions in a new function, but we can also create functions by Compose function. When we wanted computers a heating price from one day of the year, we created a new function that takes a day as input and yields a price as production. The process of combining functions so that the output of one function gets the input to another is known as a composition of functions. The resulting function is known as a composite function. We represent this combination by this notation: (f∘g) (x) = f(g(x) We read the left as composite f and g in x, and the right as f in g in x. Two places the equation has the same math meaning and are equal. The open circle symbol ∘ calls the composition operator. We use this operator mainly when we want to highlight the relationship between the functions themselves without referring to any particular input value. Composition is a binary operation that takes two functions and forms a new function, much as addition or multiplication takes two numbers and provides a new number. However, it is important not to confuse composition functions and multiplication because, as we learned above, in most cases f(g(x)) ≠f(x)g(x). It is also important to understand the order of operation to evaluate a composite function. We follow the usual convention with brackets by starting with the nuermost brackets first, and then working from the outside. In the equation above, the function g takes the input x first and yields an output g(x). Then the function f takes g(x) as an input and yields an output f(g(x)). In general, f∘g and g∘ are different functions. In other words, in many cases f(g(x)) ≠g(f(x) for all x. We will also see that sometimes two functions can be composed only in one specific order. For example, if f(x)= 2 and g (x) = x + 2, then f(g(x)) = f (x + 2) = (x + 2) = x^2 + 4x + 4 but g (f(x) = g (x^2) = x^2 + 2 These expressions are not equal for all x values, so the two functions are not equal. It is irrelevancy that the expressions occur equal for the single input value x = − 1 2. Note that the set of functions inside (the first function to be evaluated) needs to be in the domain of the outside function. Less formally, the composition has to make sense in terms of input and output. Composition of Functions When the output of one function is used as the input to another, we call the whole operation a composition of functions. For any input x with function f and g, This action defines a composite function, which we write as f∘g as those which (f∘g)(x)=f(g(x) Domain of the f composite function f∘g are all x those x is in the domain g and g(x) is in the f domain. It is important to realize that the product of fg function is not the same as composition function f(g(x)) , for, in general, f(x)g(x)≠f(g(x)). Determine whether the Function composition is Commutative Using the given functions, find f(g(x)) and g(f(x)). Determines whether the composition of the functions is conveyed. f(x) = 2x + 1 g (x) = 3 −x Let's start by overwritty g (x) in f (x). f(g(x)) = 2 (3−x) + 1 = 6 −x + 1 = 7−2x Now we can replace f(x) into g (x). g(f(x)) = 3 − (2x + 1) = 3−2x−1 = −2x + 2 We find that g(f(x)) ≠f(g(x)), so the operation of function composition is not communicated. Interpret Compose Function c(s) provides the number of calories burning s-ups, and s(t) gives the number of sit-ups a person can fill in minutes. Interpret c(3)). The inside expression of the composition is s(3). Because the input to the s-function is time, t=3 represents 3 minutes, and s(3) is the number of site-ups completed in 3 minutes. Use s(3) as the input of the function c(s) to give us the number of calories consumed during the number of site-ups that can be completed within 3 minutes, or simply the number of calories consumed within 3 minutes (failing to sit-ups). Investigate Order Composition Function Suppose f(x) gives miles that can be driven in x hours and g(y) to give gallons of fuel used in the kilometres drive. Which of these expressions is meaning: f(g(y)) or g(f(x))? The function y = f(x) is a function containing output is the number of corresponding drive miles in the number of drive hours. number of miles = f (number of hours) Function g(y) is a function containing output is the number of gallons used corresponding to the number of miles driven. I.e.: the number of gallons = g (number of miles) g Expressions (y) takes miles as the input with a number of gallons as the output. The function f(x) requires a number of hours as the input. Trying to input a number of gallons doesn't make sense. The expression f(y) is senseless. The expression f(x) takes hours as input and a number of kilometers driven as the output. function g(y) requires a number of miles like the input. Use f(x) (mile drive) as an input value for g(y), where gallons of gas depend on kilometers drive, make sense. G(f(x) makes sense, and will yield the amount of gallons gas used, g, driving a certain number of miles, f(x), in x hours. Is there any situation where f(g(y)) and g(f(x)) would both be significant or useful expressions? Yes. For many pure math functions, both compositions make sense, even if they usually produce different new functions. In real world issues, functions that have input and production have the same units also can provide the significant composition of either order. The gravitational force on a planet an r distance from the sun is provided by the function G(r). The acceleration of a planet subject to any F force is provided by the A(F) function). Form a significant composition of these two functions, and explain what it means. A gravitational force is still a force, so a (G(r) makes sense as the acceleration of a planet within a r distance from the Sun (due to gravity), but G (a(F) does not make sense. Evaluate Compose Function Once we compose a new function of two existing functions, we need to be able to figure it out for any input in its domain. We will do so with specific numeric views for express functions as tables, graphs, and formulas and variables as input function expresses as formulas. In each case, we evaluate the inner function by using the Input start and then use the inner function's output as the input for the exterior function. Evaluate Compose Function Use Table When working with the given functions as table, we read input and output values from the table entries and always work from the inside to the outside. We evaluate the function inside first and then use the output of the function inside as the input to the outside function. Use a Table to

Evaluate a Composite Function using [hyperlinks], evaluate f(g(3)) and g(f(3)). x f(x)g(x)1 6 3 2 8 5 3 3 2 4 1 7 To evaluate f(g(3)), we start from the inside with 3 input values. We then evaluate the expression inside g(3) by using the table that defines function g:g(3)=2. We can then use this result as the input to the function f, so g(3) is replaced by 2 and we find f(2). Then, using the table that defines the function f, we find that f(2) = 8. g(3) = 2 f(g(3)) = f(2) = 8 To evaluate g(f(3)), we first evaluate the expression inside (3) using the first table: f(3) = 3. Then, using the table for g, we can evaluate g(f(3))=g(3)=2[links] to display the composite functions f∘g and g∘f as tables. x g(x)f(g(x)f(x)g(f(x)x)3 2 8 3 2 Using [link], evaluate f(g(1)) and g(f(4)).f(g(1))=f(3)=f(3)=3 and g(f(4)=g(1)=3 Evaluate Compound Function Function Function When provided individual function as graph, the procedure for evaluated composite functions is similar to the process we use for tables We read the input and output values, but this time, the, axe the graphs. Given a composite function and graph its individual function, evaluate it using the information provided in the graphs. Get the given input to the inner function on the x- graph in its graph. It's output the inner function from the y-graph to its graph. Get the output of the inner function on the graph of the external function. It yields the outward function of its graph axle graph. This is the output of the composite function. Use a Graph to Evaluate a Composite Function using [link], evaluate f(g(1)). To evaluate f(g(1)), we start with the evaluation inside. See [link]. We evaluate g(1) using the graph of g(x), get the input of 1 on the x axis- and find the output value of the graph in which input. Here, g(1) = 3. We use this value as input in function f.(g(1))=f(3) We can then evaluate the composite function by looking at the graph of f(x), finding the input of 3 along the x axis- and reading the output value of the graph in this input. Here, f(3) = 6, so f(g(1)) = 6. Analysis [Link] shows how we can mark the graphs and arrows to trace the path from the input value to the output value. Use [link], evaluate g(f(2)). g(f(2))=g(5)=3 Evaluate Composite Function Composite When evaluating a composite function where we have either created or provided formula, the rule of working from the inside remains the same. The input value of the outside function will be the output of the inner function, which can be a numeric value, a variable name, or a more complicated expression. While we can compose the functions for each individual input value, it's sometimes useful to find a single formula that will calculate the result in a composition of f(g(x)). To do this, we will extend our ideas to function assessments. Remember that, when we evaluate a function such as f(t)=t 2 −t, we replace the value inside the brackets in the entire formula where we see the input variable. Provides a formula for a composite function, evaluate the function. Evaluates the function inside using the input value or given variable. Use the resulting output as the input to the outside function. Evaluate a composition of Express function as Formula with a Numeric Input Bay f(t)=2 −t and h(x)=3x+2, evaluate f(h(1)). Because the expression inside is h(1), we start by evaluating h(x) of 1. h(1) = 3(1) + 2 h(1) = 5 f(h(1)) = f(5), so we evaluate f(t) to an input of 5. f(h(1)) = f(5)f(h(1)) = 5 2 −5 f(h(1)) = 20 Analysis It makes no difference what the input variables t and x are named in this issue because we are evaluated for specific numeric values. Assign f(t)=t 2 −t and h (x)=3x+2, evaluate to Find domains in a Composite Function as we discuss previously, the domain of a composite function such as f∘g is depending on the domain of g with the f domain. It's important to know when we can apply a composite function and when we cannot, that is, know the domain of a function as f∘g. Let us assume we know the domains of the functions f and g separately. If we write the composite function for an input x as f(g(x)), we can see right away that x must be a member of the domain in order for the expression to be meaningful, because otherwise we cannot complete the inner function evaluation. However, we also see that g(x) must be a member of the f domain, otherwise the second function evaluation of f(g(x)) cannot be completed, and the expression is still undefined. Thus, the f∘g domain consists of only those input in the coG domain that produce yields from concrete to the f domain. Note that the f composite domain and g is the range of all x so that x is in the domain g and g (x) is in the f domain. The domain of a Function Compose function of a function composed f(g(x) is the range of those input x to the g domain for that g(x) is in the f.**Provide a composition function f(g(x)), determine its domain.* Find the domain g. Find the domain of f. Get these x input to the g domain for which g(x) is in the f domain. , exclude these input x from the domain g for which g(x) is not in the f domain. The resulting set is the f∘g domain. Find the domain of a Function Compose Find domain of (f∘g) (x) where f (x) = 5 x−1 and g (x) = 4 3x −2 Domains of g (x) consists of all actual numbers except x = 2 to 3, since input values would cause us to divide by 0. Similarly, the f domain consists of all actual numbers except 1. So we need to exclude the domain g (x) that value from x for that g (x) = 1. 4 3x−2= 14 = 3x − 6 = 3x = 2 So the f∘g domain is the range of all actual numbers except 2 3 and 2. This means that x≠ 2 3 or x≠2 We can write this in interval notation as (−∞, 2 3) ∪ (2 3,2) ∪ (2,∞) Get the domain of a Composite Function involving Radical Find domain of (f∘g)(x) where f(x) = x + 2 and g(x) = 3 −x Because we cannot take square root a negative number, the domain g is (−∞ ,3]. Now we check the domain of the composite function (f∘g) (x) = 3−x + 2 For (f∘g)(x) = 3 −x + 2, 3 −x + 2 ≥0, since the radio of a square root must be positive. Since square roots are positive, 3 −x ≥0, or, 3−x ≥0, assign a domain to (-∞,3] . The following example analysis shows that knowledge of the set of functions (especially the inner function) can also be useful in finding the domain of a composite function. It also shows that the f∘g domain can have values that are not in the f domain, even if they be in the domain g. Find the domain (f∘g)(x) where f(x) = 1 x−2 and g (x) = x + 4 [−4,0) ∪ (0,∞) Decompose a Function composed of its Element function in some cases, it is necessary to decompose a complicated function. In other words, we can write it as a composition of two simpler functions. There may be more than one way to decompose a composite function, so that we can choose the decomposition that appears most Decompose a Function Write f(x) = 5 − x 2 as the composition of two functions. We are looking for two functions, g and h, so f(x) = g(h(x)). To do this, we look for a function inside a function in the formula for f(x). As a possibility, we might notice that the expression 5− x 2 is inside the square root. We could then decompose the function as h (x) = 5 − x 2 and g (x) = x We can check our response by restarting the functions. g(h(x)) = g(5− x 2) = 5 − x 2 Write f(x) = 4 3 − 4 + x 2 as composition of two functions. Possible answer: **g(x) = 4 + x 2 h (x) = 4 3 −x f = h∘g Key Equation Composite Function (f∘g)(x) = f(g(x) Concept we can perform algebra operation on function. See [link]. When functions are combined, the output of the first function (inner) becomes the input of the second (outer) function. The function generated by combining two functions is a composite function. See [link] and [link]. The order of composition functions must be regarded as when interpreting the meaning of composite functions. See [link]. A composite function can be evaluated by evaluating the inner function by using the given input value and then evaluating the external function taken as its output to the inner function. A composite function can be evaluated in a table.See [link]. A composite function can be evaluated in a graph. See [link]. A composite function can be evaluated in a formula. See [link]. The domain of a composite function composite consists of those input in the domain of the inner function corresponding to the output of the inner function that is in the domain of the external function. See [link] and [link]. As functions can be combined to form a composite function, composite functions can be decomposed into simpler functions. Functions can often decompose in more than one way. See [link]. Section Exercise Verbal How does one find domain in the quotation of two functions, f g? Find the numbers that perform the function of the denominator g equal to zero, and check for any other domain restrictions on f and g, such as a same-index root or zero in the denominator. What is the composition of function, f∘g? If the order is reversed when composing two functions, can the result ever be the same as the response in the original order of the composition? If yes, provide an example. If no, explain why not. Yes. Example response: Let f (x) = x + 1 and g (x) = x−1. Then f(g (x)) = f (x−1) = (x−1) + 1 = x and g (f (x)) = g (x + 1) = (x + 1) −1 = x. So f∘g = g∘f. How do you find the domain for the composition of two functions, f∘g? Algebraic Bay f (x) = x 2 + 2x and g (x) = 6 − x 2, find f + g, f−g, fg, and f. Determines the domain for each function in interval notation. (f+g) (x) = 2x + 6, domain: (−∞,∞) (f−g)(x) = 2 x 2 + 2x−6, domain: (−∞, ∞) (fg)(x)=−x 4 −2 x 3+6 x 2+12x, domain: (−∞,∞)(g)(x) = x 2 + 2x 6 − x 2 , domain: (−∞, −6) ∪ (−6, 6) ∪ (6, ∞) Give f(x) = − x 2 + x and g (x) = 5 , get f + g , f−g, fg, and g. Determine the domain for each function at interval Assign f(x) = 2 x 2 + 4x and g (x) = 12x , find f + g, f−g, and f . Determines the domain for each function in interval notation. (f+g) (x) = 4 x 3 + 8 x 2 + 1 2x , domain: (−∞,0) ∪(0,∞) (f−g) (x)= x 4 x 3 + 8 x 2 −1 2x , domain: (−∞,0) ∪ (0,∞) (x) (x) = x + 2, domain: (−∞,0) ∪(0,∞) (f)(x) = 4 x 3 + 8 2 , domain: (−∞,0) ∪ (0,∞) Assign to f (x) = 1 x−4 and g (x) = 16 −x , find f + g, f−g, fg, and g. Determines the domain for each function in interval notation. Assign f(x) = 3 x 2 and g (x) = x−5 , find f + g, f−g, fg, and f . Determines the domain for each function in interval notation. (f+g) (x) = 3 x 2 + x−5, domain: [5,∞) (f−g) (x) = 3 x 2 − x−5 , domain: [5,∞) (fg) (x) = x 2 x−5 , domain: [5,∞) (f)(x) = 3 x 2 x − , domain: (5,∞) Assign to f (x) = x and (x) = |x−3 \|, acquire g . Determines the domain of the function of interval notation. Assign f(x) = 2 x 2 + 1 and g (x) = 3x−5, get the following: f(g(2)) f(g(x)) g(f(x)) (g∘g) (x) (f∘)(−2) a 3; b.f(g(x)) = 2 (3x−5) 2 +1; c.f(g(x)) = 6 x 2 −2; d.(g∘g)(x)=3(3x−5)−5=9x−20; e. (f∘)(−2)=163 For these exercises, use each pair of functions to find f(g(x) and g(f(x)). Simplify your answers. f (x) = x + 2, g (x) = x 2 + 3 f (g (x)) = x 2 + 3 + 2, g(f(x) = x + 4 x + 7 f (x) = x 3 , g (x) = x + 1 x 3 f (g (x)) = x + 1 x 3 = x + 1 3 x , g (f (x)) = x 3 + 1 x f (x) = 1 x−6, g (x) = 7 x + 6 f (x) = 1 x−4 , g(x) = 2 x + 4 (f∘g)= x) = 1 2 x + 4 −4 = x 2 , (g∘f) (x) = 2x−4 For these exercises, use each set of functions to find f(h(x)). Simplify your answers. f (x) = x 4 + 6, g (x) = x−6, and h (x) = x f (x) = x 2 + 1, g (x) = 1 x, and h (x) = x + 3 f (g(h(x))) = (1 x + 3) 2 + 1 Bay f (x) = 1 x and g (g x) = x−3, get the following: (f∘g)(x) the domain (f∘g)(x) at interval notation (g∘f) (x) (x) the domain (g∘f) (x) (f)g) x Bay f(x) = 2−4x and g (x) = − 3 x , find the following: (g∘f) (x) the domain (g∘f) (x) in a connotation interval. (g∘f) (x) = −3 2−4x; b. (−∞, 1 2) Provide the functions f (x) = 1−x and g (x) = 1 1 + x 2 , get the following: Assign function p(x) = 1 x and m(x) = x 2 −4, state the domains each of these functions using interval notation: p(x) m(x) p(m(x)) m(p(x)) i(p(x)) a. (0.2) ∪ (2,∞); b. (−∞,−2)∪(2,∞); c. (0,∞) Assign function q (x) = 1 x and h (x) = x 2 −9, the domain state of each of these functions using interval notation. q(x) h (x) q (x) h (x) h (x) To f (x) = 1 x and g (x) = x−1, write the domain (f∘g) (x) notation intervals. (1.∞) For these exercises, find functions f (x) and g (x) for the given functions can be expressed as h (x) = f(g(x)). h (x) = (x−5) 3 sample: f (x) = x 3 g (x) = x−5 h (x) = 4 (x + 2) sample: f (x) = 4 x g (x) = (x + 2) 2 h (x) = 1 2x − 3 sample: f (x)= x 3 g (x) = 1 2x −h (x) = 3x − x + 5 4 samples: f (x) = x 4 g (x) = 3x−2 x + 5 h (x) = (8 + x 3 8 − x 3) 4 h (x) = 2x + 6 sample : f(x) = x (x) = 2x + 6 h (x) = x − 31 samples: f (x) = x3 g (x) = (x−1) h (x) = 1 (x−2) 3 samples: f (x) = x 3 g (x) = 1 x−2 h (x) = 2x − 3x + 4 sample: f (x) = x (x) = x) = x) = 1 3x + 4 Graphics For these exercises, use the graphs of f, shown at [link], and g , shown at [link], to evaluate expressions. For these exercises, use the graph f(x), shown in [link], g(x), shown in [link], and h(x), shown in [link], evaluates expressions. Numeric For these exercises, use the function values for f and g to display in [link] to evaluate each expression. | x | f(x) | g (x) | 0 | 7 Off II | 9 | 1 May 2019 6's | 5 | 2 Not so | 5 | 6's | 3 Others | The 8 | 2 Not so | 4 May 2017 4 May 2017 1 May 2019 5 | 0 | The 8 | 6's | 2 Not so | 7 Off II | 7 Off II | 1 May 2019 3 Others | The 8 | 9 | 4 May 2017 9 | 3 Others | 0 | For these exercises, use the function values for f and g to display in [link] to evaluate expressions. ** f(x)g(x)-3 11-8 -2 9-3 -1 7 0 0 5 1 1 3 0 2-3-3-1-8 For these exercises, use each pair of functions to get f(g(0) and g (f(0)).f(x) = 5x + 7, g (x) = 4−2 x 2 f (g(0)) = 27, g(0)) = −94 f (x) = 1 x + 2 ,g(x)=4x+3 f(g(0))=15,g(f(0)=5 for these exercises, use the functions f(x)=2 x 2+1 and g(x)=3x+5 to evaluate or find the composite function as indicated. Extensions For these exercises, use f (x) = x 3 + 1 and g (x) = x−1 to 3. Get(f∘g)(x) and (g∘f)(x). Compare the two answers. Find(f∘g)(2) and (g∘f)(2). What is the domain (g∘f)(x)? What is the domain (f∘g)(x)? (−∞,∞) Let f(x) = 1 x.Find(f∘f)(x). Is (f∘f)(x) for any function f the same result as the response in part(a) for any function? Explain. For these exercises, let F (x) = (x + 1) 5 , f (x) = x 5 , and g (x) = x + 1. True or False: (g∘f) (x) = F(x). True or False: (f∘g)(x) = F(x). For these exercises, find the composition when f (x) = x 2 + 2 for all x≥0 and g (x) = x−2. (f∘g) (6); (g∘f) (6) (f∘g)(11); (g∘f) (11) (f∘g)(11)=11, (g∘f)(11)=11 Real-World Application Function D(p) provides the number of items that will be requested when the price is p. Production cost C(x) is the cost of producing x items. To determine the production cost when the price is $6, would you do which of the following? Evaluate D(6)). Evaluate C (D(6)). Solve d(x)) = 6. Solved C(P)) = 6. The function A(d) provides the pain level on a scale of 0 to 10 experienced by a patient with d milligram of a pain medication that decreases in his system. The milligrams of the drug in the patient system after minutes is modeled by me (t). Who's the following you would do in order to determine when the patient will be at a pain level of 4? Evaluate A (m(4)). Evaluate Me (A(4)). Solve A(t)) = 4. Solve me (A(d)) = 4. A store offers customers a 30% discount on the x price of selected items. Then the store took in another 15% of the cash register. Write a price function P(x) which computers the final price of the item in terms of the original price x. (Hint: Use composition function to get your answer.) A rain drop hits a rain to make a circular choke. If the radius, in inches, will grow as a function of time in minutes according to r(t) = 25 t + 2, find the area of the rip as a function of time. Find the area of the rip at t = 2. A(T) = π(25 t + 2) 2 and A(2) = π (25 to 4)= 2500π square inch a forest fire sheet behind an area of grass burning in a expanding circular pattern. If the radius of the circle of grass consumed will increase with time according to formula r(t)=2t+1, express the consumed area as a function of time, (minutes). Use the function you found in the exercise before finding the total burn area after 5 minutes. A(5) = π(2(5)+1) = 2 = 121π r's square radius unit, in inches, to a spherical balloon related to the volume, V, not r(V) = 3V 4π 3. When pumped into the balloon, so the volume after seconds is provided by V(t) = 10 + 20t. Find the composite function r(V(t)). Find the exact time when the rays arrive at 10 inches. The number of bacteria in a refrigerated food product provided by N(T) = 23 T 2 −56T + 1, 3<T<33, where T is the temperature of the feed. When the feed is removed from the fridge, the temperature is provided by T(T) = 5t + 1.5, where is the time of hour. Find the composite function N(T(t)). Find the time (round to two decimal places) when the bacteria count occurs in 6752. a.N(T(T))=23(5t+1.5)2−56(5t+1.5)+1; b. 3.38 hours composed the new function formed by composition function, when the output of one function is used as the input to another this licensed task under a Creative Commons Attribute 4.0 International License. You can also download for free at 8.1 Attribution: Attributes: