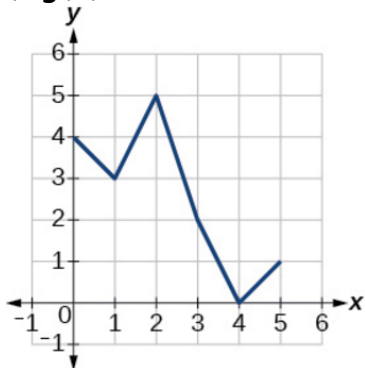


A2: Unit 7 and Unit 8 Review

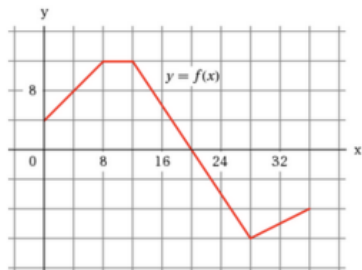
No Calculator (#1-40)

1) $g(x)$ is shown below. Sketch the inverse on the same coordinate axes.



Is the inverse a function? Explain.

Evaluate given $f(x)$, $h(x)$, $m(x)$, and $p(x)$.



$$h(x) = x^{2/3} \quad m(x) = \frac{1}{x} \quad p(x) = x^2 - x + 2$$

2) $(f + h)(8)$

3) $(m \circ f)(28)$

4) $\left(\frac{f}{p}\right)(4)$

5) $(m(p(x)))$

6) $(m \cdot p)(x)$

7) Show that $f(x) = \sqrt[3]{x+7}$ and $g(x) = x^3 - 7$ are inverses of each other. Prove algebraically.

Find the inverse of the function.

8a) $t(x) = 2^x - 5$

8b) $q(x) = \log_3(x - 1)$

Evaluate.

9) $\log_7 \frac{1}{49}$	10) $\log_4 64$
11) $\log_{121} 11$	12) $5^{\log_5 3} + \log_2 2^5$
13) $\ln 1 + \log_5 5$	14) $\log_{1/2} 16$
15) $\log_{32} 128$	16) $\log_{15} 1$
17) $\log_2 16$	18) $\log_5 \frac{1}{625}$
19) $\log_{81} 27$	20) $\log_{1/3} \frac{1}{9}$

Between which two consecutive integers does each expression lie?

21) $\log_6 50$	22) $\log_4 \frac{1}{10}$
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Rewrite using change of base formula.

23) $\log_6 50$ (use common logs)	24) $\log_4 \frac{1}{10}$ (use natural logs)
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Expand. Simplify if possible.

25) $\log_9 (9x^2y)$	26) $\ln \left(\frac{ab^2}{c} \right)^4$
27) $\log_3 \sqrt{27x^4y^3}$	28) $\log_5 \left(\frac{x+2}{25} \right)$

Condense. Simplify if possible.

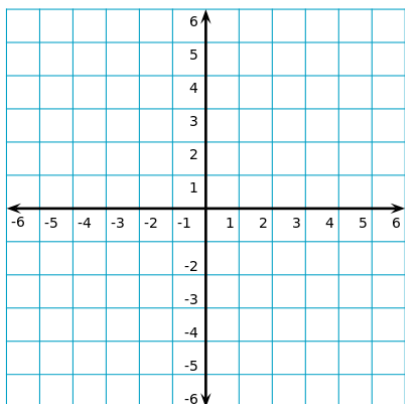
29) $5 \log x - 7 \log y - 8 \log z$	30) $\ln(x-4) + \ln(x)$
31) $3 \log_{12} x - 3 \log_{12} y$	32) $\log 5 + \log 20$

Solve. Check for extraneous solutions for log equations.

33) $\log(5x) - \log(x-1) = \log(2)$	34) $\log_5(5x-7) = \log_5(2x+5)$	35) $\log_2(x-5) = 3$
36) $7^{5-x} = \left(\frac{1}{49}\right)^x$	37) $16^{x+2} = 64^{x+5}$	38) $\log_3 x + \log_3(x-6) = 3$

Sketch. State the domain and range.

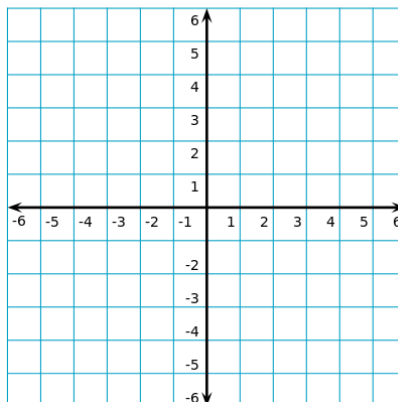
39) $y = 3^{x+2} - 2$



Domain _____ (set notation)

Range _____ (set notation)

40) $y = \log_2(x+3) - 1$



Domain _____ (interval notation)

Range _____ (interval notation)

Calculator (#41-50)

Solve. Round to 3 decimal places.

41) $7^{x-5} = 72$	42) $3 \cdot 10^x - 1 = 11$
43) $\ln \sqrt{x+5} = 3$	44) $e^{2x} = 30$

Evaluate. Round to 3 decimal places.

45) $\log_5 407$

46) $\log_{1/2} 14$

Set up an equation then solve.

47) If \$10,000 is invested at 5% compounded monthly, how much will be in the account after 4 years? Round to the nearest penny.

48) How long will it take to double your money at 7% compounded continuously? Round to three decimal places.

49) If \$10,000 is invested at 7.3% compounded continuously, how much will be in the account after 12 years? Round to the nearest penny.

50) If the ending balance of an account is \$32,155, what was the beginning balance if the investment had a rate of 8% compounded continuously for 7 years? Round to the nearest penny.