SLT 1B

SCENARIO #2

Suppose you are given the following algorithm:

- Starting with a number, double it
- Subtract three from the result
- Square that quantity
- Add 2 to the result

4. Write a function, $r(n)$, that when given an original number, n, will model the algorithm given above.

$r(n) = (2n-3)^2 + 2$

5. If you knew that the final number resulting from this algorithm is 51, what was the original number? Show how you determined that number using math symbols and a verbal explanation.

$51 = (2n-3)^2 + 2$
$49 = (2n-3)^2$
$\pm 7 = 2n-3$
$2n = 10$ or -10
$n = 5$ or -2
$r(5) = 51$

SUBTRACT 2
Take square root
ADD 3
DIVIDE by 2

6. Write a function, $b(f)$, that when given the final result, f, will determine the original number.

$b(f) = \frac{\sqrt{f-2} + 3}{2}$

SCENARIO #3

Suppose you are given the following algorithm:

- Starting with a number, divide by 3
- Increase the result by 2
- Take the cube root of that quantity
- Decrease the result by 1

7. Write a function, $r(n)$, that when given an original number, n, will model the algorithm given above.

$r(n) = \sqrt[3]{\frac{n}{3} + 2} - 1$

8. If you knew that the final number resulting from this algorithm is 2, what was the original number? Show how you determined that number using math symbols and a verbal explanation.

$2 = \sqrt[3]{\frac{n}{3} + 2} - 1$
$3 = \sqrt[3]{\frac{n}{3} + 2}$
$27 = \frac{n}{3} + 2$
$25 = \frac{n}{3}$
$n = 75$

ADD 1
cube the result
SUBTRACT 2
multiply by 3

9. Write a function, $b(f)$, that when given the final result, f, will determine the original number.

$b(f) = 3[(f+1)^3 - 2]$