SM3—9.1 answers

1a. $f(x)$ is not a function

1b. $f^{-1}(x)$ is a function

2a. $f(x)$ is a function

2b. $f^{-1}(x)$ is a not function

3a. $f(x)$ is a function

3b. $f^{-1}(x)$ is a function

4a. $f(x)$ is not a function

4b. $f^{-1}(x)$ is a function

5. $f^{-1}(x) = \frac{x+6}{3}$ or $f^{-1}(x) = \frac{x}{3} + 2$

6. $f^{-1}(x) = \frac{x-5}{2}$ or $f^{-1}(x) = \frac{x}{2} - \frac{5}{2}$

7. $f^{-1}(x) = \pm\sqrt{x} + 4$

8. $f^{-1}(x) = x^3 + 2$

9. $f^{-1}(x) = \pm\sqrt{\frac{x+6}{2}}$

10. $f^{-1}(x) = x^2 - 5$

11. $f^{-1}(x) = \sqrt[3]{x - 4}$

12. $f^{-1}(x) = (x + 2)^3 - 3$

13. $f^{-1}(x) = \sqrt[3]{x - 6} + 1$

14. $f^{-1}(x) = (2x + 6)^2 + 1$

15. yes, passes both VLT and HLT

16. no, fails HLT
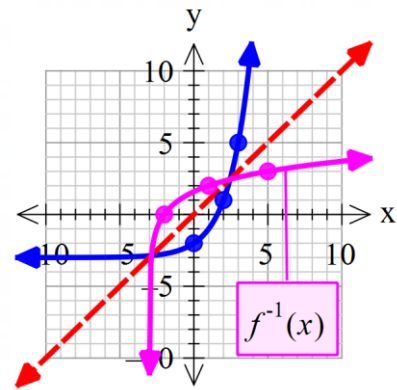
17. yes, pass both VLT and HLT

18. no, fails HLT

19.

x	f⁻¹(x)
4	0
2	2
-4	4
-14	6
-28	8

20.

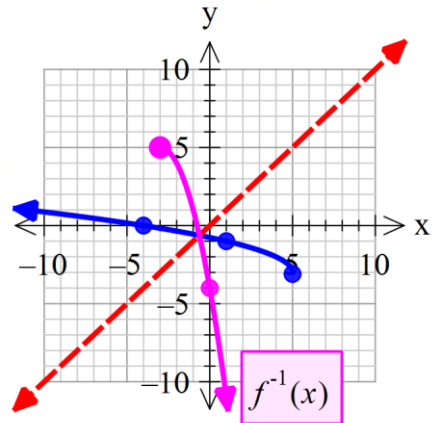| x	f⁻¹(x)
1.7	-17
1.6	-12
1.5	-9
1.4	-7
1	-3

21.

22.

23. $x^2 - 49$

24. $x^2 - 14x + 49$

25. $x^2 + 14x + 49$

26. $x = \frac{5 \pm i\sqrt{31}}{4}$