SM2H 3.7 – Solving by Completing the Square

1. $\frac{3}{4}$
2. $\frac{5}{14}$
3. $\frac{5}{3}$
4. $(x+3)^2$
5. $(x-4)^2$
6. $(x+1)^2$ prime
7. 4, $(x+2)^2$
8. 1, $(x-1)^2$
9. $\frac{49}{4}$, $\left(x+\frac{7}{2}\right)^2$
10. $\frac{81}{4}$, $\left(x-\frac{9}{2}\right)^2$
11. $\frac{1}{4}$, $\left(x+\frac{1}{2}\right)^2$
12. $\frac{1}{9}$, $\left(x-\frac{1}{3}\right)^2$
13. $x=-5\pm 3i\sqrt{5}$
14. $x=-8\pm 2i\sqrt{5}$
15. $x=-9\pm i\sqrt{3}$
16. $x=-10\pm\sqrt{138}$
17. $x=9\pm i\sqrt{11}$
18. $y=-5\pm 2\sqrt{3}$
19. $x=\frac{3}{4}\pm\frac{\sqrt{17}}{4}$
20. $x=-1\pm 3\sqrt{3}$
21. $x=1\pm\sqrt{7}$
22. $x=-\frac{6}{5}\pm\frac{18}{5}i$
23. $x=-\frac{5}{2},\ \frac{1}{2}$
24. $x=\frac{8}{3},\ -\frac{2}{3}$
25. -3 & $-25,\ 5$ & 15
26a. 0
26b. $t=0,\ 3.06$
27. $x=0,12,\ -\frac{7}{5}$
28. $f(x)=(x-14)(x-7)(x+6)$
29. $f(x)=x^2+x-6$
30

x-int: $(1,\ 0)$ & $(7,\ 0)$

y-int: $(0,\ -7)$

$(4,\ 9)$

9

none

none

$(4,\ 9)$

9

none

none

pos: $(1,\ 7)$

neg: $(-\infty,\ 1)\cup(7,\ \infty)$

inc: $(-\infty,\ 4)$

dec: $(4,\ \infty)$

none