Solutions are included here for even numbered problems or problems not in the text. You can look up the other answers in the text. In recitation you will get the results, with an answer key.

1.2 p163 #24 Find the distance between $P_1 = (-4, -3)$ and $P_2 = (6, 2)$. The answer is $5\sqrt{5}$.

Use the distance formula: $\sqrt{(6-(-4))^2 + (2-(-3))^2} = \sqrt{(10)^2 + (5)^2}$

Factor out $\sqrt{25}$: $\sqrt{100+25} = \sqrt{125} = \sqrt{25 \cdot 5} = 5\sqrt{5}$

1.5 p134 #68 Solve the inequality: $\dfrac{x}{3} \geq 2 + \dfrac{x}{6}$ The answer is $x \geq 12$.

$$\frac{x}{3} \geq 2 + \frac{x}{6}$$

Multiply through by 6, which doesn't change the inequality: $2x \geq 12 + x$

Subtract x from both sides: $x \geq 12$

2.3 p179 #18] The standard form of the equation of the circle with radius 4 and center $(2, -6)$ is

$(x-2)^2 + (y+6)^2 = 16$.

Use the formula $(x-h)^2 + (y-k)^2 = r^2$ with $h = 2$, $k = -6$, and $r = 4$.

3.1 p230 #76] For the function $f(x) = x^2 + 5x - 1$, find the difference quotient

$\dfrac{f(x+h) - f(x)}{h}$, assuming that $h \neq 0$. The answer is $2x + h + 5$.

I recommend first writing the formula for the function with a blank space instead of x.

$f(\quad) = (\quad)^2 + 5(\quad) - 1$

Then fill in the blank with $x + h$, to get $f(x+h) = (x+h)^2 + 5(x+h) - 1$. Then you are ready to find the difference quotient, since you just need to substitute the right formulas for $f(x+h)$ and $f(x)$ into the difference quotient.

$$\begin{aligned}
\frac{f(x+h) - f(x)}{h} &= \frac{((x+h)^2 + 5(x+h) - 1) - (x^2 + 5x - 1)}{h} \\
&= \frac{x^2 + 2xh + h^2 + 5x + 5h - 1 - x^2 - 5x + 1}{h} \\
&= \frac{2xh + h^2 + 5h}{h} = \frac{h(2x + h + 5)}{h} = 2x + h + 5
\end{aligned}$$

A final word of warning: be very careful when you cancel terms. This is the rule: if you have a fraction in which you have a *product* of terms in the numerator and a *product* of terms in the denominator, then you can cancel any terms that are exactly the same.