1 * Domain of $\frac{x}{\sqrt{x-10}}$

Want: $x-10>0$. So, $x>10$.

Domain: $\boxed{(10,\infty)}$

---

2 * $(f\circ g)(x) = f(g(x)) = f\left(\frac{7}{2x}\right)$

$$= \frac{2}{\frac{7}{2x}+5} = \frac{2}{\frac{7}{2x}+\frac{5}{1}\cdot\frac{2x}{2x}}$$

$$= \frac{2}{\frac{7+10x}{2x}} = \frac{2}{1}\cdot\frac{2x}{7+10x}$$

$$= \boxed{\frac{4x}{7+10x}}$$

---

3 * $y=\frac{7x+2}{5} \rightarrow 5y = 7x+2 \rightarrow 7x = 5y-2$

$\rightarrow x = \frac{5y-2}{7} \rightarrow y = \frac{5x-2}{7}$

$\rightarrow \boxed{f^{-1}(x) = \frac{5x-2}{7}}$

---

4 * Distance $= \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$$= \sqrt{(3-(-6))^2+(-2-(-5))^2}$$

$$= \sqrt{(9)^2+(3)^2} = \sqrt{90}$$

$$= \sqrt{9\cdot 10} = \boxed{3\sqrt{10}}$$

---

5 * Standard form of the circle equation:

$$\boxed{(x-3)^2+(y-8)^2 = 19}$$

---

6 * Vertex: $\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$

$a=1$, $b=-10$, $c=-7$.

So, $x_{\text{-vertex}} = \frac{-10}{-2} = 5$. $y_{\text{-vertex}} = (5)^2 - 10\cdot 5 - 7$

$= -32$.

Ans: $(5, -32)$

7 * Since $P(x)$ is a quadratic function with $a=-0.004<0$, it has a maximum value.

The maximum value occurs at $x = -\frac{b}{2a}$

Here $a=-0.004$ and $b=2.4$.

So, $x = \frac{2.4}{0.008} = 300$.

So, the # of pretzels that must be sold to maximize profit is

$x = 300$ pretzels.

---

8 * Leading term: $(-6x^3)\cdot(x)\cdot(x)^2 = -6x^6$

With this leading term, the end behavior is:

Falls to the left and falls to the right.

9 * $f(x) = 3(x+2)(x+5)^2$

$f(x)=0$ when $x=-2$ and $x=-5$.

-2 is a zero of multiplicity 1. Graph crosses x-axis there.

-5 is a zero of multiplicity 2. Graph touches x-axis and turns around there.

---

10 * $(x^3-x^2+5)\div(x+2)$

-2	1	-1	0	5
		-2	6	-12
	1	-3	6	$\boxed{-7}$

Remainder

Quotient: x^2-3x+6