Answers to Worksheet 22 - Average Rate, Value, Derivative of Inverse

1) $\left(f^{-1}\right)'(a) = 6$

2) $\left(f^{-1}\right)'(a) = -\dfrac{1}{5}$

3) $\left(f^{-1}\right)'(a) = -\dfrac{1}{12}$

4) $\left(f^{-1}\right)'(a) = \dfrac{1}{8}$

5) $f'(t) = \dfrac{1}{\sqrt{1-\left(2t^4\right)^2}} \cdot 8t^3$

$= \dfrac{8t^3}{\sqrt{1-4t^8}}$

6) $\dfrac{dr}{dx} = -\dfrac{1}{\sqrt{1-\left(3x^5\right)^2}} \cdot 15x^4$

$= -\dfrac{15x^4}{\sqrt{1-9x^{10}}}$

7) $h'(w) = \dfrac{1}{\left(-w^3\right)^2+1} \cdot -3w^2$

$= -\dfrac{3w^2}{w^6+1}$

8) $h'(x) = \dfrac{1}{\sqrt{1-\left(-5x^4\right)^2}} \cdot -20x^3$

$= -\dfrac{20x^3}{\sqrt{1-25x^8}}$

9) $h'(1) = -8$

10) $-\dfrac{2}{3}$

11) -1

12) Average rate of change: 1

Average value: $-\dfrac{2}{3}$

13) Average rate of change: $-\dfrac{1}{2}$

Average value: ln 2

14) Average rate of change: 1

Average value: $-\dfrac{1}{3}$

15) Average rate of change: $\dfrac{1}{2}$

Average value: $-\ln 2$