**MATH1040 Basic Mathematics** **Practice Problems 7**

**1.** Answer each of the following questions, showing all working:

(**1**) Find $f(-4)$ where $f(y) = -2y^2 - 9y - 1$.

(**2**) Solve $y(-8y + 7) = 0$.

(**3**) Solve $-6z - 3z^2 - 6 = 0$.

(**4**) Solve each of the following equations **without** using the quadratic formula:

**i**. $-3y(-4 - 6y) = 0$

**ii**. $(1 - 2z)(9z + 10) = 0$

**iii**. $6(-3z - 7)(-3z + 1) = 0$

**iv**. $(8 - 8x)^3 = 0$

(**5**) Find the domain of $f(x) = -7 + \left|x^2\right|$ .

(**6**) Find the range of $f(w) = 3 + |\sqrt{w}|$ .

(**7**) Find the domain of $f(z) = \dfrac{6}{|z| + 10}$ .

(**8**) Find the domain and the range of $f(x) = \left|\dfrac{-2}{-x}\right|$ .

(**9**) **

Find the range of $f(x) = \dfrac{-10}{10 + \sqrt{x}}$ .

**2.** Answer each of the following questions, showing all working:

(**1**) Find $f(5)$ where $f(y) = -3y^2 - 10y - 10$.

(**2**) Solve $(7z - 4)(-10z + 1) = 0$.

(**3**) Solve $15 - 5y^2 - 10y = 0$.

(**4**) Solve each of the following equations **without** using the quadratic formula:

**i**. $y(8 + 4y) = 0$

**ii**. $(-8 + 2z)(1 + 9z) = 0$

**iii**. $5(4z - 8)(-5z + 7) = 0$

**iv**. $(-9 + 5x)^4 = 0$

(**5**) Find the domain of $f(w) = \sqrt{\left(\dfrac{7}{w}\right)^2}$ .

(**6**) Find the range of $f(w) = \sqrt{6 \times \dfrac{7}{w}}$ .

(**7**) Find the domain of $f(z) = \dfrac{12}{-9 + \sqrt{z}}$ .

(**8**) Find the domain and the range of $f(w) = \sqrt{w^2} + 5$ .

(**9**) **

Find the range of $f(z) = \dfrac{1}{z^2 + 3}$ .

**3.** Answer each of the following questions, showing all working:

(**1**) Find $f(9)$ where $f(z) = -7z - 6$.

(**2**) Solve $7y\left(3y-3\right)=0$.

(**3**) Solve $\quad 5z^2-50=15z$.

(**4**) Solve each of the following equations **without** using the quadratic formula:

**i**. $10z\left(8+3z\right)=0$

**ii**. $\left(-10-10x\right)\left(2x-5\right)=0$

**iii**. $4\left(-6-6y\right)\left(-6+9y\right)=0$

**iv**. $\left(3+7x\right)^{9}=0$

(**5**) Find the domain of $f(z)=\dfrac{-9}{\sqrt{-4+z}}$ .

(**6**) Find the range of $f(x)=\sqrt{2\left|x\right|}$ .

(**7**) Find the domain of $f(z)=\dfrac{6}{1-12z}$ .

(**8**) Find the domain and the range of $f(x)=\left|x^2\right|$ .

(**9**) **

Find the range of $f(x)=\dfrac{11}{-5+\left|x\right|}$ .

**4.** Answer each of the following questions, showing all working:

(**1**) Find $f(0)$ where $f\left(x\right)=-3x^2-8x$.

(**2**) Solve $-9y\left(-10+6y\right)=0$.

(**3**) Solve $\quad -31x-80-2x^2=5x+2x^2$.

(**4**) Solve each of the following equations **without** using the quadratic formula:

**i**. $9x\left(-3x-4\right)=0$

**ii**. $\left(-3x+7\right)\left(-4+8x\right)=0$

**iii**. $6\left(-10x-1\right)\left(-8x-8\right)=0$

**iv**. $\left(10z-1\right)^{1}=0$

(**5**) Find the domain of $f(w)=-3\sqrt{w-4}$ .

(**6**) Find the range of $f(w)=2+\sqrt{w^2}$ .

(**7**) Find the domain of $f(z)=\dfrac{-12}{z^2+4}$ .

(**8**) Find the domain and the range of $f(z)=-9+\dfrac{10}{z^2}$ .

(**9**) **

Find the range of $f(x)=\dfrac{-3}{11x+5}$ .

**5.** Answer each of the following questions, showing all working:

(**1**) Find $f(4)$ where $f\left(y\right)=6y^2+7y+8$.

(**2**) Solve $9\left(-3-5x\right)\left(5x+8\right)=0$.

(**3**) Solve $\quad y^2+25-10y=0$.

(**4**) Solve each of the following equations **without** using the quadratic formula:

**i**. $5z\left(9+3z\right)=0$

**ii**. $\left(-6+2y\right)\left(-2+4y\right)=0$

**iii**. $5\left(-10-9x\right)\left(x-8\right)=0$

**iv**. $\left(4z+1\right)^{6}=0$

(**5**) Find the domain of $f(z) = \left| \dfrac{-1}{\sqrt{z}} \right|$ .

(**6**) Find the range of $f(z) = \left|z^2\right| + 3$ .

(**7**) Find the domain of $f(x) = \dfrac{6}{2 + x^2}$ .

(**8**) Find the domain and the range of $f(w) = -3 + |\sqrt{w}|$ .

(**9**) **

Find the range of $f(x) = \dfrac{4}{1 + |x|}$ .