MDM4U – Review of Prerequisite Skills

1. Express each decimal as a percent.
   a) 0.35 b) 0.04 c) 0.008 d) 0.375

2. Express each percent as a decimal.
   a) 3% b) 85% c) 6.5% d) 75.2%

3. Express each percent as a fraction in simplest form.
   a) 12% b) 4% c) 0.5% d) 98%

4. Express each fraction as a percent. Round answers to the nearest tenth, if necessary.
   a) $\frac{1}{4}$ b) $\frac{11}{14}$ c) $\frac{4}{9}$ d) $\frac{13}{20}$

5. A coin is flipped three times. Draw a tree diagram to illustrate all possible outcomes.

6. Evaluate each expression given x = 5, y = 5, and z = 3.
   a) $\frac{8y(x+2)(y+2)(z+2)}{(x-3)(y+3)(z+2)}$ b) $\frac{(x+4)(y-2)(z+3)}{(y-1)(x-3)z} + \frac{(x-1)^2(z+1)y}{(x-3)^4(y+4)}$

7. Evaluate.

a) $5(4)+(-1)^3(3)^2$

b) $\dfrac{(10-2)^2(10-3)^2}{(10-2)^2-(10-3)^2}$

c) $\dfrac{6(6-1)(6-2)(6-3)(6-4)(6-5)}{3(3-1)(3-2)}$

d) $\dfrac{12\times11\times10\times9}{6^2}+\dfrac{10\times9\times8\times7}{2^4}-\dfrac{8\times7\times6\times5}{42}$

8. Simplify.

a) $\dfrac{x^2-xy+2x}{2x}$

b) $\dfrac{(4x+8)^2}{16}$

c) $\dfrac{x(x-1)(x-2)(x-3)}{x^2-2x}$

d) $\dfrac{2y+1}{x}+\dfrac{16y+4}{4x}$

9. Use the exponent laws to simplify each of the following.

a) $(-4x)^3$

b) $21(x^3)^2\left(\dfrac{1}{x^2}\right)^5$

c) $\left(\dfrac{1}{2}\right)^4(3x^2)(2y)^3$

10. Expand and simplify. $(5x-y)^2$