# Review Questions for Midterm Exam

Use the order of operations to simplify the following expression

1. $\dfrac{[-8-(|-4|\times 8\div 16)][-15-(\sqrt{64}\div -2)]}{(43-40)^3-2^4\div 4}$

Solve the following expressions

2. $\dfrac{10^{-23}\times 10^{-16}\times 10^{31}}{10^{17}\times 10^{13}\times 10^{-27}}$

$$\frac{\left(\dfrac{10^{16}}{10^{-25}}\right)^{-6}}{\left(\dfrac{10^{-18}}{10^{22}}\right)^{3}}$$

3. $\dfrac{18\times 12\times 10^6}{27\times 10^4+(8.2\times 10^2)^3}$

4. $\frac{1}{6.280\times10^{2}}+\frac{1}{5160}-\sqrt{9720}$

5. $\frac{1}{\frac{1}{7500}-\frac{1}{5600}+\frac{1}{3300}}$

Convert to the following units, final answers should be in scientific notation

6. 0.000417 A = _____mA = _____ μA

7. 34.7 mL/km = _____cups/yard = _____ GL/inch

8. Convert the following

| Decimal Number | Scientific Notation |
|---|---|
| 0.000008601 | |
| | $5.71 \times 10^{-7}$ |

9. Fill in the following table by converting the known numbers

| Decimal (Base 10) | Binary (Base 2) | Octal (Base 8) | Hexadecimal (Base 16) |
|---|---|---|---|
| $433_{10}$ | | | |
| | $100110_{2}$ | | |
| | | $165_{8}$ | |
| | | | $3EC_{16}$ |

Compute the following in the given base

10. $71456_8 + 20317_8$

11. $A3B92F_{16} + 83CD0E_{16}$

12. $1100011_2 + 1011011_2$

13. $101110_2 \div 101_2$

14. $732540_8 - 164273_8$

15. $8C90A3_{16} - 231A79_{16}$

16. $1110011_2 - 0101101_2$

17. $1010110_2 \times 1011_2$

18. $1101101_2 - 1001010_2$ (Use the one's complement)

19. $1010110_2 - 1010001_2$ (Use the two's complement)

20. $964805_{10} - 697123_{10}$ (Use the nine's complement)

21. $739618_{10} - 428561_{10}$ (Use the ten's complement)

Also questions on conversion between percent and decimal, rounding, significant figures, scientific notation, powers of 10...will be in multiple choice format.