Instructions: Pick the letter which represents the correct answer for each problem. Calculators are not allowed.

1. $\frac{2\sqrt{12^2}-\left(\sqrt{12}\right)^2}{\sqrt{5}}$ equals:

[2(sqrt(12^2))-(sqrt12)^2]/sqrt5

a. $\frac{144}{\sqrt{5}}$ b. $\frac{12}{5}$ c. $\frac{12\sqrt{5}}{5}$ d. 0

144/sqrt5 12/5 [12sqrt5]/5 **0**

2. $\frac{a}{b-c}-1$ can be simplified to:

[a/(b-c)]-1

a. $\frac{a+b-c}{b-c}$ b. $\frac{a-1}{b-c}$ c. $\frac{a}{b}-\frac{a}{c}-1$ d. $\frac{a-b+c}{b-c}$

(a+b-c)/(b-c) (a-1)/(b-c) (a/b)-(a/c)-1 (a-b+c)/(b-c)

3. $\frac{\left(4^2\right)^{-1}\times 2^{-3}}{2^0\times 4^{-3}}$ using the laws of indices equals:

[(4^2)^-(1)] x 2^-(3)/[2^0 x 4^-(3)]

a. 4 b. $\frac{1}{2}$ c. $\frac{1}{4}$ d. 2

4. Three members of a group are absent. If the absent members represent 12 ½ % of the group, how many are in the group?

a. 25 b. 24 c. 18 d. 36

5. $\frac{a^4b^{-2}}{4a^{-2}b}\div\frac{b^{-1}}{8a^2}$ can be expressed with positive indices as:

{[(a^4)(b^-(2))]/[(4a^-(2)b)]}/{[(b^-(1))]/(8a^2)]}

a. $\frac{4a^6}{b^3}$ b. $\frac{a^4}{2b^2}$ c. $2\left(\frac{a^4}{b}\right)^2$ d. $\frac{2a^4}{b^3}$

(4a^6)/b^3 (a^4)/2b^2 2(a^4/b)^2 (2a^4)/b^3

6. If x = log3 and y = log5 then log45 is:

a. 2x + y b. x + 2y c. 2(2y + x) d. 3x + 2y

7.

8. If $\text{Log}_a N^2 = b$ then N is:

a. a^b b. $\frac{a^2}{b}$ c. b^a d. $a^{\frac{b}{2}}$

a^b a^2/b b^a a^b/2

8. Find the value of *x* in the following equation $\frac{2x-1}{3}+\frac{x}{6}=1$

[(2x-1)/3]+x/6=1

a. 8/5 b. 5/8 c. 3/2 d. 2/3

9. A straight line passes through the points (0, 4) and (3, 0). The equation of the line is:

a. 4y – 3x + 0 b. 3y – 4x – 6 = 0 c. 3y + 4x – 12 = 0 d. 3y – 4x – 12 = 0

10. If $f(x)=\frac{4x^2-9}{2x-3}$ then $f(2a)$ is:

f(x)=[4x^2-9]/[2x-3] f(2a)

a. $\frac{8a-9}{2a-3}$ b. $\frac{4a-3}{2a-3}$ c. $\frac{4a^2-3}{2}$ d. $\frac{4a+3}{1}$

[8a-9]/[2a-3] [4a-3]/[2a-3] [4a^2-3]/2 [4a+3]/1

11. If *sin*Z = 4/5 and 0<Z<90˚ then *tan*Z is:

a. 5/4 b. 3/4 c. 4/3 d. 3/5

12. A ladder which is ℓ meters long leans against a vertical wall. The angle between the ladder and the horizontal ground is *x* degrees. The distance that the ladder reaches up the wall is given by?

a. $\ell \sec x$ b. $\ell \cos x$ c. $\ell \sin x$ d. $\ell \tan x$