

MATH and PHYSICS 1114

Algebra: If your algebra is a little rusty, then dust off your old algebra book (or get an algebra review book) and review a little. An appendix in the book reviews algebra.

[A quiz to help you decide how much algebra to review-answers rounded to 2 significant figures.]

1) $3ab - 4ab =$: (A) $-12ab$; (B) $-12(ab)^2$; (C) $7ab$; (D) ab ; (E) $-ab$

2) $3ab - 4ac =$: (A) $-12abc$; (B) bc ; (C) $-abc$; (D) $a(3b - 4c)$

3) Write the formula for the area A of a circle in terms of π and its diameter d :

4) $\frac{a+2}{b+2} =$: (A) $\frac{a}{b}$; (B) $\frac{1}{2} \frac{a}{b}$; (C) $(a+2)/(b+2)$; (D) $\frac{a+1}{b+1}$

5) Write an expression for "the sum of five times t square minus 6 plus one-third t ":

6) Evaluate $4(3 - 7) - 8 + 12/3$: (A) 14.67; (B) -20; (C) 1; (D) 16

7) If $x = 4$ and $y = 3$, evaluate $6 \cdot (x-y) - 7 + 14/(x+y)$:
(A) 1.0; (B) 37; (C) 1.86; (D) 6; (E) 2.0

8) If $x = 3$ and $y = 4$, evaluate $6 \cdot [(x-y) - 7 + 14/(x+y)]$:
(A) -24; (B) -36; (C) -11; (D) -46; (E) 12

9) Simplify $a \cdot a^3 + a^2 \cdot a$: (A) a^5 ; (B) $5a^2$; (C) $5a^4$; (D) $6a^4$

10) Simplify $a^3 \cdot a^2 \cdot a^{-4}$: (A) a^{-24} ; (B) a ; (C) a^9 ; (D) a^2

11) If $\frac{2 \cdot a}{b} = \frac{3 \cdot c}{d}$, then $d =$: (A) $3bc/(2a)$; (B) $3c$; (C) b ; (D) $2a/(3bc)$; (E) $6ac/b$

12) If $x^2 \cdot x^3 = x^y$, then $y =$: (A) 1; (B) 2; (C) 3; (D) 5; (E) 6

13) If $\sqrt{x^4} = x^N$, then $N =$: (A) 4; (B) 0.5; (C) 3.5; (D) 8; (E) 2

14) If $1/x^2 = x^N$, then $N =$: (A) $1/2$; (B) 2; (C) 0.5; (D) -2; (E) -0.5

15) If $F = (9 \cdot C/5) + 32$, then $C =$

16) If $V_S/V_P = N_S/N_P$ and $V_S I_S = V_P I_P$, find I_S/I_P in terms of N_S and N_P :

17) If $N = (a+2)/(b+5)$, what value of b is not allowed?

- 18) If $F = qvB$, then $v =$
- 19) If $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$, $R_1=2$, & $R_2=3$, then $R_T =$: (A) 0.83; (B) 0.5; (C) 1.2; (D) 0.33
- 20) If $F = K/D^2$, $f = K/d^2$, and $d = D/2$ then $f/F =$: (A) 2; (B) 1/2; (C) 4; (D) 1/4
- 21) If $a = F/m$, then a is inversely proportion to F . (True/False)
- 22) If $d = (1/2)gt^2$ then d is directly proportional to t squared. (True/False)
- 23) Write an equation that says M is three times as old as Q .
- 24) Write an equation that says P is three years older than Q .
- 25) If $d = d_0 + (1/2)at^2$ then $t =$

ANSWERS: 1) E; 2) D; 3) $A=\pi d^2/4$; 4) C; 5) $5t^2 - 6 + t/3$; 6) B; 7) A; 8) B; 9) B; 10) B; 11) A; 12) D; 13) E; 14) D; 15) $C= 5(F-32)/9$; 16) $I_s/I_p = N_p/N_s$; 17) $b= -5$; 18) $v= F/(qB)$; 19) C; 20) C; 21) F; 22) T; 23) $M = 3Q$; 24) $P = Q+3$; 25) $[2(d-d_0)/a]^{0.5}$