PreCalculus Quiz 1 version 1

name:

1. Use long division to compute: $(-3) \div (x+1)$

   A $\ldots + 64\,x^5 - 32\,x^4 + 16\,x^3 - 8\,x^2 + 4\,x - 2$

   B $\ldots + -\frac{1}{64}\,x^5 - \frac{1}{32}\,x^4 - \frac{1}{16}\,x^3 - \frac{1}{8}\,x^2 - \frac{1}{4}\,x - \frac{1}{2}$

   C $\ldots + -96\,x^5 - 48\,x^4 - 24\,x^3 - 12\,x^2 - 6\,x - 3$

   D $\ldots + 3\,x^5 - 3\,x^4 + 3\,x^3 - 3\,x^2 + 3\,x - 3$

   E none of these

2. Suppose we have two glasses each containing exactly 10 fluid ounces of soda, one is pure coke the other is pure pepsi. Suppose we (FIRST) take a spoon full of coke and pour and mix into the pepsi glass. NEXT, we take a spoon full from the mostly pepsi glass mixture and pour it back into the coke glass. Assume the spoon is no bigger than 10 ounces. Select the true statement/s

   A There is now more coke in the pepsi glass than pepsi in the coke glass.

   B There is now more pepsi in the coke glass than coke in the pepsi glass.

   C The amount of pepsi in the coke glass is equal to the amount of coke in the pepsi glass.

   D There is not enough information to known which contains more.

   E none of these

3. If $5\,x - y = (-8)$, what is the value of $\frac{(-243)^x}{(-3)^y}$?

   A $\frac{1}{64}$ B 16 C $\frac{1}{6561}$ D 81 E 256 F none of these

4. Solve for k assume the following equation is true for all real values of x except where any denominator is zero.

$$\frac{2\left(x^2+3\,x-1\right)}{kx+4} = -x + \frac{18}{kx+4} - 5$$

   A 4 B -2 C -4 D 1 E -3 F none of these

5. If x is the average of $5\,m$ and 9, y is the average of $2\,m$ and 7 , and z is the average of $5\,m$ and 8, what is the average of $x, y,$ and z?

   A $2\,m + 4$

   B $2\,m + 2$

   C $\frac{7}{6}\,m + 1$

   D $\frac{7}{3}\,m + \frac{7}{3}$

   E $2\,m + \frac{13}{6}$

   F none of these

6. Simplify: $\frac{2\,x^2+8\,y}{6\,y^3+4\,x^2}$

   A $\frac{1}{3\,y^2}$

   B $\frac{x^2+4\,y}{3\,y^3+2\,x^2}$

7. Congress is debating a proposed law to lower taxes. If the current tax rate is $r = 6\%$, then the proposed rate after x years is given by the formula:

$$\frac{r}{1+\frac{1}{1+\frac{1}{x}}}$$

   . What will the approximate tax rate be in 10 years?

   A $\frac{22}{7}\%$ B $\frac{104}{51}\%$ C $\frac{160}{31}\%$ D $\frac{32}{31}\%$ E $\frac{104}{17}\%$ F none of these

8.

Solve: $(3x-2)(3x-3)(3x-5)(2x+1)=0$

A $x=\left(-\frac{1}{2}\right)$ OR $x=\left(-\frac{1}{2}\right)$ OR $x=\left(-\frac{3}{2}\right)$ OR $x=1$

B $x=1$ OR $x=(-1)$ OR $x=3$ OR $x=\left(\frac{5}{3}\right)$

C $x=1$ OR $x=\left(\frac{5}{3}\right)$ OR $x=\left(\frac{2}{3}\right)$ OR $x=\left(-\frac{1}{2}\right)$

D none of these

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9. DOS

Difference of Squares

$$(x+3)(x-3)$$

A x^2-6x+9 B x^2-4 C x^2-9

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10. multiply and simplify $4(-3x-3)$

A $-12x-12$

B x^4+4x^3

C $2x^3+2x^2-4x$

D none of these

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11. solve completely

$$K^2+9K+20=0$$

A $K=-5$ or $K=4$

B $K=9$ or $K=13$

C $K=6$ or $K=0$

D $K=-5$ or $K=-4$

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12. Consider an unknown number, x and suppose 8 times the square root of the quantity 9 times the number plus 2 yields 7. What can be said about the number ?

A $9x+2=\left(\frac{7}{8}\right)^2$

B $\left(\sqrt{9x+2}\right)^2=7$

C $\left(\sqrt{9x+2}\right)^2=\left(\frac{7}{8}\right)^2$

D $\sqrt{9x+2}=\frac{7}{8}$

E $\left(\sqrt{9x+2}\right)^2=7^2$

F $8\sqrt{9x+2}=7$

G $\sqrt{9x}+\sqrt{2}=7$

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13. Solve the following linear equation

$$\frac{2x-2}{3}=3(x+3)$$

A $x=2$

B $x=\left(\frac{17}{31}\right)$

C $x=\left(-\frac{5}{7}\right)$

D $x=\left(-\frac{29}{7}\right)$

E none of these

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14. Solve: $(3x-4)(2x+1)=0$

A $x=\left(-\frac{1}{2}\right)$ OR $x=\left(\frac{4}{3}\right)$

B $x=\left(-\frac{3}{2}\right)$ OR $x=(-1)$

C $x=5$ OR $x=\left(-\frac{4}{5}\right)$

D none of these

15.

DoS

Difference of Squares: Factor

$$4x^2 - 9$$

A $(2x + 3)(2x - 3)$

B $(2x + 3)(2x + 3)$

C none of these

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16. PP3

Perfect Cube: Multiply

$$(x + y)^3$$

A $x^3 + 3x^2y + 3xy^2 + y^3$

B $x^3 + 3xy + y^3$

C $x^3 + 2xy + y^3$

D none of these

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17. DoS

Difference of Squares: Factor

$$x^2 - 16$$

A $(x + 4)(x + 4)$

B $(x - 4)(x - 4)$

C $(x - 4)(x + 4)$

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18. Solve: $(x + 4)(x + 1) = 0$

A $x = (-1)$ OR $x = (-4)$

B $x = \left(-\frac{4}{3}\right)$ OR $x = \left(-\frac{1}{2}\right)$

C $x = (-4)$ OR $x = (-1)$

D none of these

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19. divide and simplify $\left(-3\,x^4 - 3\,x^3 - x^2 + 12\,x + 4\right) \div (-x^2 - 2\,x - 3)$

A $\left(-2\,x^2 + x - 3\right) + \frac{1}{3\,x-1}$

B $\left(3\,x^2 - 3\,x - 2\right) + \frac{x+2}{x^2+2\,x+3}$

C $(2\,x + 2) + \frac{2}{3\,x}$

D none of these

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20. GS

Geometric Series: Factor

$$x^6 - 1$$

A $(x - 1)\left(x^5 + x^4 + x^3 + x^2 + x + 1\right)$

B $(x - 1)\left(x^3 + x + 1\right)$

C none of these

21.

match the expression with equivalent version/s

$2\,x+4$

A $-2\,x^2\,(-5\,x+3)$

B $10\,x^3-6\,x^2$

C $-2\,(-x-2)$

22. solve $-8\,x+2=2\,x-2$

A $\frac{2}{9}$ B $\frac{4}{5}$ C $\frac{11}{2}$ D $\frac{2}{5}$

23. compute $\left(-x^3+3x^2-2\right)\div\left(4x^3\right)$

A $-\frac{3}{2}+\frac{3x^2-2}{4x^3}$

B $-\frac{1}{4}+\frac{3x^2-2}{4x^3}$

C none of these

24. Simplify: $(3\,i+3)(2\,i+5)(2\,i+4)$

A $24i+72$ B $102i-6$ C $-8i+56$ D none of these

25. PP2

Perform the indicated operation.

Perfect Square: Multiply

$(4)^2$

A 16

B -11

C none of these