Kyote Practice Problems 1

1. An eastbound car is going 4 miles per hour faster than a westbound car. The cars are 208 miles apart 2 hours after passing each other on a highway. What is the speed, in miles per hour, of the eastbound car?

☐ A) 54 ☐ B) 50 ☐ C) 53 ☐ D) 51 ☐ E) 52

2. If a man walks at the rate of 2 feet per second, how many minutes will it take him to walk 4320 feet?

☐ A) 2160 ☐ B) 1080 ☐ C) 18 ☐ D) 72 ☐ E) 36

3. One solution of $x^2 - 5\,x - 1 = 0$ is

☐ A) $\frac{5 - \sqrt{29}}{2}$ ☐ B) $-5 + \sqrt{29}$ ☐ C) $5 + \sqrt{29}$ ☐ D) $\frac{-5 + \sqrt{29}}{2}$ ☐ E) $-5 - \sqrt{29}$

4. Solve $56 - 7\,x = 2$ for x.

☐ A) 58 ☐ B) $\frac{54}{7}$ ☐ C) $\frac{58}{7}$ ☐ D) 54 ☐ E) -47

5. Simplify. $(-6\,x^4)^2$

☐ A) $-36\,x^8$ ☐ B) $36\,x^6$ ☐ C) $-36\,x^6$ ☐ D) $36\,x^8$ ☐ E) $-6\,x^8$

6. The graph of the line with equation $y = 7\,x + 8$ crosses the x-axis when $x =$?

☐ A) 8 ☐ B) $\frac{-8}{7}$ ☐ C) 0 ☐ D) $\frac{-7}{8}$ ☐ E) $\frac{8}{7}$

7. Find the value of $\frac{x-y}{x}$ when $x = -2$ and $y = -3$.

☐ A) $\frac{-1}{2}$ ☐ B) -3 ☐ C) $\frac{1}{2}$ ☐ D) 3 ☐ E) $\frac{5}{2}$

8. Multiply. $2(4\,x+2)(x-1)$

☐ A) $8\,x^2 - 12\,x - 4$ ☐ B) $8\,x^2 - 4\,x - 4$ ☐ C) $16\,x^2 - 8\,x - 8$

☐ D) $16\,x^2 - 24\,x - 8$ ☐ E) $8\,x^2 - 4$

9. Add. $\frac{1}{4} + \frac{1}{5}$

☐ A) $\frac{1}{20}$ ☐ B) $\frac{2}{9}$ ☐ C) $\frac{9}{20}$ ☐ D) $\frac{1}{9}$ ☐ E) $\frac{1}{10}$

10. Solve $\frac{1}{3}x - \frac{2}{3} = 4$ for x.

☐ A) 6 ☐ B) $\frac{13}{3}$ ☐ C) $\frac{1}{14}$ ☐ D) 10 ☐ E) 14

11. Subtract $\frac{r}{x} - \frac{3\,s}{y}$

☐ A) $\frac{r\,x - 3\,s\,y}{x\,y}$ ☐ B) $\frac{r\,y - 3\,s\,x}{x-y}$ ☐ C) $\frac{r-3\,s}{x-y}$ ☐ D) $\frac{r\,y - 3\,s\,x}{x\,y}$ ☐ E) $\frac{r-3\,s}{x\,y}$

12. A line with slope 3 passes through the point $(0, 10)$. What is the y-coordinate of the point on the line with x-coordinate 2?

☐ A) 16 ☐ B) 6 ☐ C) 13 ☐ D) 9 ☐ E) 32

13. Solve the system $\begin{cases} x + 4y &= 1 \\ -x + y &= 4 \end{cases}$. What is the x-coordinate of this solution?

☐ A) 1 ☐ B) -3 ☐ C) -1 ☐ D) 0 ☐ E) 3

14. A rectangular field is enclosed by 360 feet of fencing. What is the length, in feet, of the field if its length is 6 feet more than its width?

☐ A) 183 ☐ B) 90 ☐ C) 87 ☐ D) 177 ☐ E) 93

15. Combine like terms and simplify. $(6x^2 - 6x + 4) - (x^2 - 5x - 9)$

☐ A) $5x^2 - x + 13$ ☐ B) $5x^2 - 11x + 13$ ☐ C) $5x^2 - x - 5$

☐ D) $6x^2 - x + 13$ ☐ E) $6x^2 - 11x - 5$

16. Simplify. $(-6)^2 - 4^2$

☐ A) 20 ☐ B) -52 ☐ C) -4 ☐ D) 52 ☐ E) -20

17. What is the perimeter, in feet, of a rectangle whose length is twice its width and whose width is 5 feet?

☐ A) 20 ☐ B) 30 ☐ C) 40 ☐ D) 10 ☐ E) 15

18. Simplify. $5(5 - 2x) - 2(4 - 3x)$

☐ A) $17 - 16x$ ☐ B) $33 - 16x$ ☐ C) $33 - 5x$

☐ D) $17 - 4x$ ☐ E) $17 + x$

19. Multiply. $4\,x\,(x-1)^2$

☐ A) $4\,x^3-4\,x$ ☐ B) $4\,x^3-8\,x^2+4\,x$ ☐ C) $4\,x^3-8\,x^2-4\,x$

☐ D) $4\,x^3+4\,x$ ☐ E) $4\,x^3-4\,x^2+4\,x$

20. Simplify. $\dfrac{6\,x^8-2\,x^2}{2\,x^2}$

☐ A) $3\,x^6-1$ ☐ B) $6\,x^8-1$ ☐ C) $3\,x^6-2\,x^2$ ☐ D) $6\,x^8$ ☐ E) $3\,x^4-1$

21. What is the area of the triangle whose vertices are $(-4,0)$, $(-10,0)$ and $(-7,-6)$?

☐ A) 21 ☐ B) 60 ☐ C) 27 ☐ D) 30 ☐ E) 18

22. Solve $9\,x+8\,y=36$ for x.

☐ A) $\frac{8}{9}\,y+4$ ☐ B) $\frac{9}{8}\,y+36$ ☐ C) $\frac{-9}{8}\,y+4$ ☐ D) $\frac{-8}{9}\,y+4$ ☐ E) $\frac{-8}{9}\,y+36$

23. Which fraction is the largest?

☐ A) $\frac{1}{2}$ ☐ B) $\frac{13}{30}$ ☐ C) $\frac{8}{15}$ ☐ D) $\frac{7}{15}$ ☐ E) $\frac{17}{30}$

24. Solve $2\,x+4>8\,x-8$ for x.

☐ A) $x>\frac{2}{3}$ ☐ B) $x>2$ ☐ C) $x<\frac{2}{3}$ ☐ D) $x<2$ ☐ E) $x<\frac{6}{5}$

25. Add the mixed numbers. $6\frac{5}{7} + 9\frac{1}{2}$.

☐ A) $16\frac{3}{14}$ ☐ B) $15\frac{2}{3}$ ☐ C) $15\frac{3}{7}$ ☐ D) $16\frac{17}{14}$ ☐ E) $16\frac{2}{3}$

26. A buyer purchases 20 percent of the 12000 widgets in a warehouse's inventory. The next day, another buyer purchases 10 percent of the remaining widgets. How many widgets are left in the warehouse?

☐ A) 8760 ☐ B) 8400 ☐ C) 8280 ☐ D) 8640 ☐ E) 8520

27. Find the value of $x^3 + x^2 - 3\,x$ when $x = -2$.

☐ A) -6 ☐ B) 10 ☐ C) 2 ☐ D) -18 ☐ E) 18

28. Simplify. $5 - \frac{4-7}{5-4}$

☐ A) 8 ☐ B) $\frac{-2}{5}$ ☐ C) $\frac{-3}{4}$ ☐ D) $\frac{3}{4}$ ☐ E) -6

29. What is the greatest common factor of the two terms in the expression $x^5\,y^2 + x^2\,y^7\,z$

☐ A) x^2 ☐ B) $x^2\,y^2\,z$ ☐ C) $x^2\,y^2$ ☐ D) y^2 ☐ E) $x^5\,y^7\,z$

30. Simplify, assuming x is a positive number. $\sqrt{x^{16} + 16\,x^8}$

☐ A) $x^6\sqrt{x^8 + 16}$ ☐ B) $x^4\sqrt{x^8 + 16}$ ☐ C) $x^{14} + 4\,x^6$

☐ D) $x^{10} + 4\,x^6$ ☐ E) $x^8 + 4\,x^4$

Key: Kyote Practice 1

1) ◇ A	2) ◇ E	3) ◇ A	4) ◇ B	5) ◇ D	6) ◇ B
7) ◇ A	8) ◇ B	9) ◇ C	10) ◇ E	11) ◇ D	12) ◇ A
13) ◇ B	14) ◇ E	15) ◇ D	16) ◇ A	17) ◇ B	18) ◇ D
19) ◇ B	20) ◇ A	21) ◇ E	22) ◇ D	23) ◇ E	24) ◇ D
25) ◇ A	26) ◇ D	27) ◇ C	28) ◇ A	29) ◇ C	30) ◇ B

Standards Table

Standard	**Problems**	**Max**	**Score**
01:Evaluate numerical expressions.	16,28	2	
02:Evaluate algebraic expressions.	7,27	2	
03:Perform arithmetic calculations.	9,25	2	
04:Order fractions and decimals on a number line.	23	1	
05:Solve applied arithmetic problems.	2,26	2	
06:Solve simple geometry problems.	17	1	
07:Solve simple coordinate geometry problems.	21	1	
08:Add and subtract polynomials.	15,18	2	
09:Multiply polynomials.	8,19	2	
10:Simplify algebraic expressions.	5,30	2	
11:Factor a polynomial.	29	1	
12:Add, subtract and multiply simple rational expressions.	11	1	
13:Simplify a rational expression.	20	1	
14:Solve a linear equation.	4,10	2	
15:Solve a multivariable equation for one of its variables.	22	1	
16:Use a linear equation to solve a simple word problem.	1,14	2	
17:Solve a linear inequality.	24	1	
18:Find the slope and an equation of a line.	12	1	
19:Graph a line.	6	1	
20:Solve a quadratic equation.	3	1	
21:Solve a system of two linear equations in two variables.	13	1	