

NAME: _____

Student id: _____

INSTRUCTIONS: No books, notes, calculators, etc. All answers must be simplified as much as possible. Write all answers in the spaces provided at the right. Do scratchwork on the back or on scratch paper provided. *No partial credit*. Time: 30 minutes.

1. Suppose $p(x) = 3x^3 - 5x^2 + 2$. Find the exact value of $p(2)$.

Answer: _____

2. Simplify the following expression as much as possible. If no simplification is possible, write “not possible”:
$$\frac{z^3 + 3z}{z^3 + 6z}$$

Answer: _____

3. Find all real solutions to the equation $1 = 10z^{-2} - 3z^{-1}$. If no real solution exists, write “no solution”.

Answer: _____

4. Find all real solutions to the equation $3(4 - y^{-3}) = 12$. If no real solution exists, write “no solution”.

Answer: _____

5. Multiply out: $(5x - 3)(2x + 4)$.

Answer: _____

6. Write as a single fraction, and simplify as much as possible:
$$\frac{2}{z-1} - \frac{1}{z-7}$$

Answer: _____

7. Assuming $y > 0$, write the expression $\frac{2\sqrt[7]{y}}{7y}$ as a numerical constant (possibly a fraction) multiplied by a power of y . (y may not appear in a denominator.)

Answer: _____

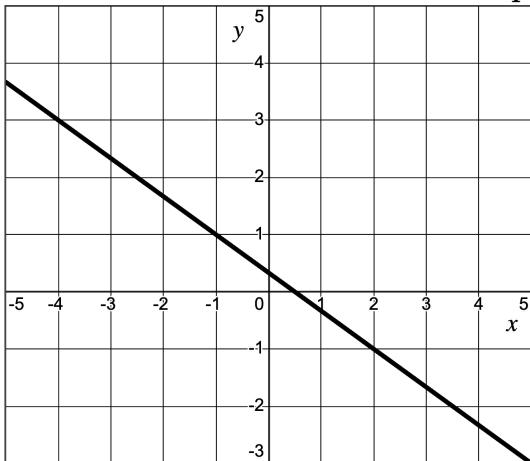
8. Find the domain of the function $f(x) = \sqrt{-x}$.

Answer: _____

9. Let $f(x) = 7 - x$. Evaluate the expression $f(17) - f(2x - 3)$, and simplify it as much as possible.

Answer: _____

10. Determine the exact value of the **slope** of the line in the graph below.



Answer: _____