Long Island University
Brooklyn Campus

Mathematics Department

SAMPLE PROBLEMS OF MATH 10 EXIT EXAMS

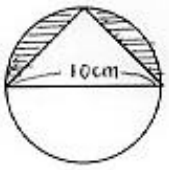
Show the steps.

1. Divide $\frac{25b^2-36}{b^2+4ab+4a^2}$ by $\frac{5b+6}{2a+b}$.

2. Divide x^5-32 by $x+2$.

3. Write $\frac{5-2i}{3+2i}$ in form of $a+bi$ where a and b are real numbers.

4. Find the exact area of the shaded region



5. Solve for x, $\frac{3}{x^2-4}=\frac{2}{x+2}+\frac{5}{x-2}$.

6. Find all the values of x, (a) $\sqrt{2x+2}-\sqrt{x+2}=1$. (b) $\log_4 x=-\frac{3}{2}$.

7. Factor completely, $3x^4y^3-15x^3y^3-18x^2y^3$.

8. Compute (a) $\cot\frac{2\pi}{3}$ (b) $\cos\frac{5\pi}{4}$ (c) $\tan\frac{7\pi}{4}$ (d) $\cos 3\pi$.

9. Simplify $\dfrac{\frac{a}{2b}-\frac{2b}{a}}{\frac{1}{b^2}-\frac{1}{2a}}$.

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10. Sketch the gragh of (a) $y=2^{x-2}$, (b) $y=\log_2(x+1)$.

11. Factor completely, $4(b+3a)^2-9(b^2+3a)^2$.

12. Rationalize the numerator, $\frac{2\sqrt{5}-3\sqrt{2}}{2\sqrt{5}+3\sqrt{2}}$.

13. Sketch the gragh of the funtion after finding the coordinates of the vertex and the equation of the axis of symmetry, $y=-2x^2+4x+2$.

14. Find the length and the coordinats of the midpoint of the line segment whose end points are (-2,5) and (-4,7).

15. Factor completely, $x^4-y^4+5x^2-5y^2$.

16. The volume V of a given mass of a gas varies directly as the temperature T and inversely as the pressure P.
If $V=200\ cm^3$, $T=40$ degree, and $P=10\ kg/cm^2$, find the volume V when $T=30$ degree, $P=5\ kg/cm^2$.

17. Sim plify

(a) $\left(\frac{2x^2y^{-2}}{3x^8y^7}\right)^9$ (b) $\left(\frac{p^{\frac{3}{4}}q^{-\frac{2}{3}}}{p^{\frac{7}{8}}q^{-\frac{3}{4}}}\right)^2$. (c) $\sqrt[3]{xy^2z}\sqrt{x^3yz^2}$.

18. From a small boat the angle of elevation to the top of a lighthouse is 30 degrees. How far from the foot of the lighthouse is the boat if the top of the lighthouse is 50 feet above the sea level?

19. Perimeter of a rectangle is 228m. The width is 42m less than the length. Find the dimensions.

20. (a) Find all the values of x, $\left(\frac{2}{x-3}\right)^2-3\left(\frac{2}{x-3}\right)-4=0$.

(b) A student's scores on four tests are 92%, 88%,61%, and 69%. What must the student score on the fifth test so that the average will be 81% ?