

FOMP 10 Chapter 4 Review Pack v1**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which statement is correct about the expression $-4^{\frac{1}{2}}$ when it is evaluated?
- a. The sign is positive.
 - b. The sign is negative.
 - c. The expression is equal to 0.
 - d. The expression is undefined.

Short Answer**Level 1-2 Questions**

1. Which expression represents a negative number (2^{-3} , $(-3)^2$, -3^0 , $(-3)^{-1}$)?
2. Determine the value of $(-1)^0 - 5^0$.
3. Evaluate $2^0 + 2^{-3}$.
4. Evaluate $225^{\frac{1}{2}}$.
5. Write an equivalent power to $\sqrt[3]{16}$?

Level 3-4 Questions

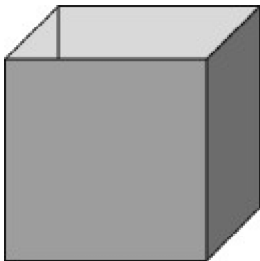
6. Describe the number 49 in terms of perfect square and cube.
7. Simplify $\left(\frac{7}{2}\right)^5 (2)$.

Name: _____

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8. One side of a square is $7b$ in length. What is the area of the square?
9. Carbon-14 is a radioactive element with a half-life of 5700 years. If a sample contains 8 g of carbon-14 today, what mass of carbon-14 will it contain in 22 800 years?
10. Write an equivalent power to $\sqrt[5]{444^6}$?
11. The root of a number can be represented by
12. Simplify $[(5^{\frac{1}{3}})^{\frac{3}{2}}]^{\frac{4}{3}}$.
13. Express $\sqrt{192}$ as an equivalent mixed radical.
14. Express $\sqrt{81s^9}$ as a power with a rational exponent.
15. Convert $\sqrt[5]{729}$ to an equivalent mixed radical.
16. Write an equivalent power to $\frac{1}{(\sqrt[4]{x})^3}$?
17. Write as an entire radical: $2.5\sqrt[3]{5}$?
18. Express $t^{-\frac{5}{3}}$ as an equivalent radical.

19. State whether each number is a perfect square or a perfect cube. Show your work.
- 1681
 - 1764
20. Write and evaluate an expression using exponents for the total area of each pair of squares.
- Square A has side lengths of 9.3 km and square B has side lengths of 6.4 km.
 - Square C has side lengths of 5.9 cm and square D has side lengths of 1.9 cm.
21. Evaluate using a calculator. Express the answer to four decimal places, where necessary.
- $(6^2)(6^{2.3})$
 - $\frac{9^{1.6}}{27^{0.3}}$
 - $\frac{(3^{\frac{1}{2}})^3}{9}$
22. An open-topped cubical box has a volume of 512 cm^3 . Determine the total surface area of the five faces of the box.



23. The value of x that makes $\left(\frac{4}{3}\right)^x = \frac{27}{64}$ true is _____.

Level 5-6 Questions

24. What values of x can be substituted into the equation $y = 8^x$?

25. Express $\sqrt[8]{\sqrt{197^{\frac{5}{8}}}}$ as a power with a rational exponent. Do not evaluate.
26. There are 6 bacteria in a dish at the beginning of an experiment. The number of bacteria doubles every 6 h. How many bacteria are there after 6 days? Express your answer in both exponential and simplified form.
27. A company manufactures fences for residential use. The production of fencing can be modelled using the equation $s = 2.1\sqrt{h}$, where s is the number of sections of fencing produced and h is the number of hours of labour.
- How many sections will be produced if a crew works a total of 170 h in a day?
 - How many more sections will be produced in 340 h per day?
 - How many hours of labour will be needed if the company wants to maintain a production rate of 28 sections per day?
28. The swing of a pendulum is affected by acceleration due to gravity. The equation $T = 2\pi\sqrt{\frac{L}{g}}$ represents the relationship between the time it takes a pendulum that is $L = 1.9$ m long to swing back and forth once and gravitational acceleration. In this formula, T is time, in seconds, and g is the gravitational acceleration, in metres per second per second, or metres per second squared.
- The gravitational acceleration at Earth's surface is about 9.81 m/s^2 . How long would it take the pendulum to swing back and forth once at Earth's surface? Express the answer to the nearest tenth of a second.
 - The gravitational acceleration on the moon is about $\frac{1}{6}$ of the gravitational acceleration at Earth's surface. Determine how long it would take the pendulum to swing back and forth if it were on the moon. Express the answer to the nearest tenth of a second.

Level 7-8 Questions

29. For what value of x do 4^x , 2^x , and $\left(\frac{1}{4}\right)^x$ have the same value?