

Mastery Test #4 Review

Evaluate the expression.

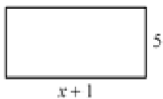
1 $3 [22 - (7 + 9)]$

Solve the equation. Then check the solution.

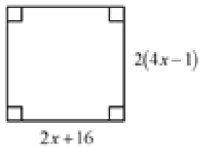
2 $-2(6n - 5) = -26$

Find the value of x for the figure.

3 Perimeter = 30



4 Find the value of x so that the figure is a square.



Solve the inequality. Then graph the solution.

5 $\frac{x}{2} < -5$



6 $-2x \leq -8$



- 7** Brant makes \$9 an hour working at McWarner's Autobody. He plans to buy a hand-held computer, which costs \$243. Write and solve an inequality describing at least how long Brant will have to work to be able to buy the hand-held computer.

Solve the inequality. Then identify the solution of the inequality.

8 $1 + 4x < 21$

- 9** Which of the numbers 1, 3, 17, or 35 is composite?

A. 3

B. 1

C. 17

D. 35

Write the prime factorization of the number.

10 51

11 126

Factor the monomial.

12 $22j^2k^3$

Find the greatest common factor of the numbers.

13 120, 140

Decide whether the numbers are relatively prime. If not, find the greatest common factor.

14 30, 40

Find the greatest common factor of the monomials.

15 $108a^4b^2, 32a^2b$

16 $15f^6g^5, 60f^2g^8$

- 17 A teacher has 98 stickers, 28 buttons, and 196 ribbons. He wants to divide them so that each portion has an equal number of stickers, an equal number of buttons, and an equal number of ribbons. What is the maximum number of portions he can make?

Write the fraction in simplest form.

18 $\frac{9v^2}{24v}$

19 $\frac{9b^4}{27b}$

20 $\frac{6a^2b^5}{27ab^9}$

Write the fractions in simplest form. Tell whether they are equivalent.

21 $\frac{25}{45}, \frac{200}{360}$

Find the least common multiple of the numbers.

22 4, 24

23 216, 30

Find the least common multiple of the monomials.

24 $6rs, 8r^2$

Find the missing exponent.

25 $\frac{15^?}{15^2} = 15^3$

Find the product. Write your answer using exponents.

26 $2^4 \cdot 2^5$

Simplify the expression. Write your answer using exponents.

27 $\frac{e^4}{e^3}$

28 $k^{12} \cdot k^2$

Simplify the expression.

29 $2a^2b^5 \cdot 6a^9b^3$

30 $\frac{m^9p^{16}}{m^3p^{12}}$

31 $3g^6 \cdot 3^3g^9$

Name: _____

ID: A

32 $\frac{5x^7y^8 \cdot 6xy^3}{3x^2y}$

Write the expression using only positive exponents.

33 $-20x^5y^{-2}$

Write the expression without using a fraction bar.

34 $\frac{18}{x^{-8}}$

Find the product. Write your answer using only positive exponents.

35 $x^0 \cdot x^{15}$

36 $8^{-6} \cdot 8^9$

Find the quotient. Write your answer using only positive exponents.

37 $\frac{x^{-5}}{x^9}$

Write the number in scientific notation.

38 2570

39 0.0000323

Name: _____

ID: A

Write the number in standard form.

40 5.39×10^8

Find the product. Write your answer in scientific notation.

41 $(1.5 \times 10^{-6}) \times (2.3 \times 10^{-3})$

42 $(1.5 \times 10^2)(2.3 \times 10^3)$

43 A planet has an approximate diameter of 3.11×10^5 kilometers. Write the diameter in standard form.

44 An observatory has been tracking a comet for a distance of 3.889×10^7 kilometers. Which of the following is equal to that distance?

Order the numbers from least to greatest.

45 4.38×10^8 ; 4.38×10^6 ; 43,800,000; 8.38×10^7

Mastery Test #4 Review Answer Section

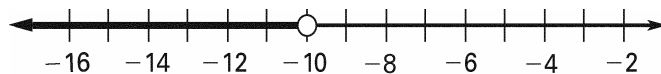
1 18

2 3

3 9

4 3

5 $x < -10$

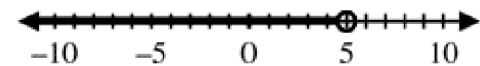


6 $x \geq 4$



7 $\$9 \cdot h \geq \243 or $h \geq \frac{\$243}{\$9}$; at least 27 hours

8 $x < 5$



9 D

10 $3 \cdot 17$

11 $2 \cdot 3^2 \cdot 7$

12 $2 \cdot 11 \cdot j \cdot j \cdot k \cdot k \cdot k$

13 20

14 No; 10

15 $4a^2b$

16 $15f^2g^5$

17 14

18 $\frac{3v}{8}$

19 $\frac{b^3}{3}$

20 $\frac{2a}{9b^4}$

21 $\frac{5}{9}, \frac{5}{9}, \text{yes}$

22 24

23 1080

24 $24r^2s$

25 5

- 26 2^9
- 27 e
- 28 k^{14}
- 29 $12a^{11}b^8$
- 30 m^6p^4
- 31 $81g^{15}$
- 32 $10x^6y^{10}$
- 33 $\frac{-20x^5}{y^2}$
- 34 $18x^8$
- 35 $\frac{1}{x^{15}}$
- 36 8^3
- 37 $\frac{1}{x^{14}}$
- 38 2.57×10^3
- 39 3.23×10^{-5}
- 40 539,000,000
- 41 3.45×10^{-9}
- 42 3.45×10^5
- 43 311,000 km
- 44 38,890,000 km
- 45 4.38×10^6 ; 43,800,000; 8.38×10^7 ; 4.38×10^8