

Name key

Algebra Quiz REVIEW

<p>1. <math>p^0 q^{12} r^{-8} v^{-1} w^2</math></p> $\frac{q^{12} w^2}{r^8 v}$	<p>2. <math>\frac{4^{-3} k^6 m^{-2}}{5^{-2} j^{-4} n^{10}} = \frac{5^2 k^6 j^4}{4^3 m^2 n^{10}}</math></p> $\frac{25 j^4 k^6}{64 m^2 n^{10}}$	<p>3. Evaluate for <math>x = -4</math> and <math>y = 5</math></p> $x^2 y^{-3} = (-4)^2 (5)^{-3} = \frac{(-4)^2}{(5)^3}$ $= \frac{16}{125}$
<p>4. Evaluate for <math>x = -6</math> and <math>y = -1</math></p> $x^2 y^{-5} = (-6)^2 (-1)^{-5}$ $= \frac{(-6)^2}{(-1)^5} = \frac{36}{-1}$ $= \boxed{-36}$	<p>5. Evaluate for <math>x = 5</math> and <math>y = -2</math></p> $x^{-2} y^{-2} = (5)^{-2} (-2)^{-2}$ $= \frac{1}{(-5)^2 (-2)^2}$ $= \frac{1}{25 \cdot 4} = \boxed{\frac{1}{100}}$	<p>6. <math>-3x^4 \cdot 5x^{-7}</math></p> $= -15x^{-3} = \boxed{\frac{-15}{x^3}}$
<p>7. <math>6m^6(8m^8)</math></p> $\boxed{48m^{14}}$	<p>8. <math>2b^4 \cdot 4a^{-3} \cdot 5b^{-5} \cdot -2a^8</math></p> $-80a^5 b^{-1}$ $= \boxed{\frac{-80a^5}{b}}$	<p>9. <math>a^m \cdot a^n</math></p> $\boxed{a^{m+n}}$
<p>10. <math>p^3 \cdot p^{2k}</math></p> $\boxed{p^{2k+3}}$	<p>11. <math>w^x \cdot w^{x+3} \cdot w^{4x+1}</math></p> $\boxed{w^{6x+4}}$	<p>12. <math>(a^m)^n</math></p> $\boxed{a^{mn}}$

13.  $(b^4)^{-3}$

$$= b^{-12}$$

$$= \boxed{\frac{1}{b^{12}}}$$

14.  $(m^8)^3(m^5)^6$

$$m^{24} m^{30}$$

$$\boxed{m^{54}}$$

15.  $81 = 3^x$

$$3^4 = 3^x$$

$$\boxed{x=4}$$

16.  $(2a^9)^5$

$$2^5 a^{45}$$

$$\boxed{32a^{45}}$$

17.  $(3cd^4)^3(2c^{-5}d)^2$

$$3^3 c^3 d^{12} 2^2 c^{-10} d^2$$

$$27 \cdot 4 \cdot c^{-7} \cdot d^{14}$$

$$\boxed{\frac{108d^{14}}{c^7}}$$

18. Solve for x:

$$(b^2)^x = b^8$$

$$b^{2x} = b^8$$

$$2x = 8$$

$$\boxed{x=4}$$

19. Solve for x:

$$(a^3b^5)^x = a^{24}b^{40}$$

$$3x = 24$$

$$5x = 40$$

$$x = 8$$

$$\boxed{x=8}$$

20. Solve for x:

$$(a^2b^6)^x = \frac{1}{a^{10}b^{30}}$$

$$2x = -10 \quad 6x = -30$$

$$\boxed{x=-5} \quad x=-5$$

21.  $\frac{b^{24}}{b^8}$

$$\boxed{b^{16}}$$

22.  $\frac{5^{12}}{5^4}$

$$\boxed{5^8}$$

23.  $\frac{42w^9x^{-3}}{3w^{-3}x^6}$

$$14w^{12}x^{-9}$$

$$= \boxed{\frac{14w^{12}}{x^9}}$$

24. rewrite with only 1 exponent:

$$\frac{27x^3}{8y^3}$$

$$\frac{3^3x^3}{2^3y^3} = \boxed{\left(\frac{3x}{2y}\right)^3}$$

25. rewrite with only 1 exponent:

$$\frac{49m^2}{169m^4} = \frac{49}{169} m^2$$

$$= \left(\frac{7}{13}\right)^2$$

26. Solve for x:

$$8^2 = 2^x$$

$$(2^3)^2 = 2^x$$

$$2^6 = 2^x$$

$$x = 6$$

27. Solve for x:

$$3^x = 27^4$$

$$3^x = (3^3)^4$$

$$3^x = 3^{12}$$

$$x = 12$$

28. Solve for x:

$$4^x = 2^6$$

$$(2^2)^x = 2^6$$

$$2^{2x} = 2^6$$

$$2x = 6$$

$$x = 3$$

29.

$$\left(\frac{8m}{16m^4}\right)^2$$

$$= \left(\frac{1}{2m^3}\right)^2$$

$$= \frac{1}{4m^6}$$

30. Evaluate for x = -2, y = 4, z = 1

$$\frac{6x^2y^5}{24x^{-1}y^5z^{-2}}$$

$$= \frac{x^3z^2}{4} = \frac{(-2)^3(1)^2}{4}$$

$$= \frac{-8}{4} = -2$$

31. Evaluate for x = -3, y = 2, z = 4

$$\frac{27x^2y^0z^{-2}}{9x}$$

$$= \frac{3x}{z^2} = \frac{3(-3)}{4^2}$$

$$= -\frac{9}{16}$$

32.  $\frac{(4x^5)(-3x^5y)}{6xy^{-4}}$

$$= \frac{-12x^{10}y}{6xy^{-4}}$$

$$= -2x^9y^5$$

33.  $\frac{a^b}{a^3}$

$$= a^{b-3}$$