

# High School Common Core: Number and Quantity

Name: \_\_\_\_\_

Exam Questions (No calculator)

1 min / prob.

Pd: Key Date: \_\_\_\_\_

<p>1. Simplify: <math>(-4b^3)(2b^5)</math></p> <p>A) <math>-2b^{15}</math>  <b>B) <math>-8b^8</math></b>            C) <math>-2b^8</math>            D) <math>-8b^{15}</math></p>	<p>2. Simplify <math>\frac{-9a^5b^8}{3a^2b^4}</math></p> <p>A) <math>\frac{-6a^3}{b^4}</math>            B) <math>3a^3b^2</math>  <b>C) <math>-3a^3b^4</math></b>            D) <math>-3a^3b^2</math></p>	<p>3. Simplify: <math>(-2a^3 \cdot -a^4)^2(-6a^2)</math></p> <p><math>-24a^{16}</math></p>
<p>4. Simplify: <math>(-6p^2q^3)^2</math></p> <p>A) <math>12p^4q^5</math>  <b>B) <math>36p^4q^6</math></b>            C) <math>12p^4q^6</math>            D) <math>36p^4q^5</math></p>	<p>5. Simplify <math>\frac{a^2b^{-7}}{a^{-4}b^{-2}}</math></p> <p>A) <math>\frac{a^2}{b^9}</math>      B) <math>a^6b^5</math>  <b>C) <math>\frac{a^6}{b^5}</math></b>      D) <math>\frac{b^5}{a^6}</math></p>	<p>6. Simplify <math>(-3n^4)(-5n^7)</math></p> <p><math>15n^3</math></p>
<p>7. Simplify <math>\frac{6x^2y^3}{(-4x^4y)(-3x^3y^2)}</math></p> <p><b>A) <math>\frac{1}{2x^5}</math></b>      B) <math>\frac{y}{2x^5}</math>            C) <math>\frac{2}{x^5}</math>      D) <math>\frac{2y}{x^5}</math></p>	<p>8. Simplify</p> <p>A) <math>-2^3 = \underline{-8}</math>            B) <math>8^2 = \underline{64}</math>            C) <math>9^{-1} = \underline{\frac{1}{9}}</math>            D) <math>(-4)^{-2} = \underline{\frac{1}{16}}</math></p>	<p>9. Simplify <math>(-3p^{-3}q \cdot 3p^3q^{-4})^2</math></p> <p>A) <math>81pq^6</math>      B) <math>\frac{1}{81q^6}</math>            C) <math>81q^6</math>      <b>D) <math>\frac{81}{q^6}</math></b></p>
<p>10. Simplify: <math>(5x^4)^3</math></p> <p><b>A) <math>125x^{12}</math></b>            B) <math>25x^{12}</math>            C) <math>125x^7</math>            D) <math>25x^7</math></p>	<p>11. Simplify <math>(-4a^2)(2a^{-3})^{-4}</math></p> <p><b>A) <math>\frac{a^{14}}{-4}</math></b>      B) <math>\frac{1}{-4a^{10}}</math>            C) <math>-4a^{10}</math>      D) <math>-64a^{14}</math></p>	<p>12. Simplify <math>\frac{28x^5}{14x^4}</math></p> <p>A) <math>\frac{2}{x^9}</math>      B) <math>2x</math>  <b>C) <math>2x^9</math></b>      D) <math>\frac{2}{x}</math></p>

13. Simplify  $(-7x^4y^2)(-2x^3y)$

- A)  $14x^7y^2$
- B)  $-7x^7y^3$
- C)  $14x^7y^3$
- D)  $14x^{12}y^2$

14. Simplify  $(4m^{-4}n^3)^{-2}$

- A)  $\frac{16m^8}{n^6}$
- B)  $-\frac{8m^8}{n^6}$
- C)  $\frac{m^8n^6}{16}$
- D)  $\frac{m^8}{16n^6}$

15. Simplify:  $\frac{(4a^{-1}b^{-4})^{-3}}{(-8a^4b^{-2})^{-2}}$

$a^{11}b^8$

16. Simplify  $(2p^{-3})^5$

$\frac{32}{p^{15}}$

17. Simplify  $(-2c^{-4}d^{-1})(5c^2d^{-3})$

- A)  $-\frac{c^2}{10d^4}$
- B)  $-\frac{10d^3}{c^8}$
- C)  $-\frac{10}{c^2d^4}$
- D)  $-\frac{10d^4}{c^2}$

18. Simplify:  $\frac{-9b^{-5}}{(-3b^{-1} \cdot b^{-4})^3}$

$\frac{b^{10}}{3}$

19. Simplify:  $(-7x^3y^4)^2(x^2y^5)$

$49x^8y^{13}$

20. Simplify:  $\frac{5a^7}{10a^3}$

- A)  $2a^4$
- B)  $\frac{1}{2a^4}$
- C)  $\frac{a^4}{2}$
- D)  $\frac{a^4}{5}$

21. Simplify  $\frac{n^5}{(-2n^4)^3}$

- A)  $\frac{1}{-6n^7}$
- B)  $\frac{1}{-8n^7}$
- C)  $-6n^2$
- D)  $-8n^2$

22. Simplify  $(-8a^5b^7)^0$

- A) 0
- B) 1
- C)  $-8a^5b^7$
- D)  $\frac{1}{-8a^5b^7}$

Version w/ sequences

<p>23. Solve:</p> $x^3 + 2x^2 - 8x - 16 = 0$ $x = \pm 2\sqrt{2}, -2$	<p>24. Solve:</p> $x^4 + 5x^2 - 36 = 0$ $x = \pm 2, \pm 3i$
<p>25. Solve:</p> $x^3 - 27 = 0$ $x = 3, \frac{-3 \pm 5i}{2}$	<p>26. Solve:</p> $(x + 3)^{2/3} = 16$ $x = 61, -67$
<p>27. Solve:</p> $4\sqrt{x} - 3 = 0$ $x = \frac{9}{16}$	<p>28. Solve:</p> $\sqrt[3]{3x + 1} - 5 = 0$ $x = \frac{124}{3}$
<p>29. Find the simplified formula for <math>a_n</math> when</p> $a_1 = 5, d = -3/4.$ $a_n = -3/4n + \frac{23}{4}$	<p>30. Simplify: <math>\left(\frac{4}{25}\right)^{-3/2}</math></p> $\frac{125}{8}$

31. Find the partial sum for  
(no calc)

$$\sum_{n=1}^{50} n$$

1275

32. Find the formula for  $a_n$   
when

$$a_1 = -2, \quad r = 1/3$$

$$a_n = -2\left(\frac{1}{3}\right)^{n-1}$$

33. Find the 20<sup>th</sup> term for the  
sequence

4, 9, 14, 19, 24,.....

$$a_{20} = 99$$

34. Find the 8<sup>th</sup> term for the  
sequence in which

$$a_1 = 4, \quad r = 1/2$$

$$a_8 = \frac{1}{32}$$