Name: _____ Score:

Quotient Rule

Algebra: E1

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{y^9}{y^3}$

2) $\frac{r^7}{r^5}$

3) $\frac{t^5}{t^4}$

4) $\frac{x^6}{x^4}$

5) $\frac{q^{10}}{\quad}$

6) $\frac{h^8}{\quad}$

7) $\frac{b^8}{b^6}$

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10) $\frac{w^9}{w^6}$

13) $\frac{u^7}{u^2}$

16) $\frac{v^8}{v^3}$

17) $\frac{s^6}{s^2}$

18) $\frac{n^{10}}{n^5}$

Name: _____ Answer key Score:

Quotient Rule

Algebra: E1

1) $\frac{y^9}{y^3}$ $= y^6$

2) $\frac{r^7}{r^5}$ $= r^2$

3) $\frac{t^5}{t^4}$ $= t^1$

4) $\frac{x^6}{x^4}$ $= x^2$

5) $\frac{q^{10}}{q^3}$

6) $\frac{h^8}{h^5}$

7) $\frac{b^8}{b^6}$ $= b^2$

10) $\frac{w^9}{w^6}$ $= w^3$

13) $\frac{u^7}{u^2}$ $= u^5$

16) $\frac{v^8}{v^3}$ $= v^5$

17) $\frac{s^6}{s^2}$ $= s^4$

18) $\frac{n^{10}}{n^5}$ $= n^5$

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Name: _____ Score:

Quotient Rule

Algebra: E2

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{w^5}{w^2}$

2) $\frac{v^8}{v^5}$

3) $\frac{n^4}{n^2}$

4) $\frac{u^8}{u^2}$

5) $\frac{q^9}{\quad}$

6) $\frac{g^6}{\quad}$

7) $\frac{b^9}{b^4}$

10) $\frac{k^{10}}{k^4}$

13) $\frac{m^8}{m^3}$

16) $\frac{y^8}{y^5}$

17) $\frac{z^7}{z^5}$

18) $\frac{p^6}{p^4}$

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Name: _____ Answer key Score:

Quotient Rule

Algebra: E2

1) $\frac{w^5}{w^2}$ $= w^3$

2) $\frac{v^8}{v^5}$ $= v^3$

3) $\frac{n^4}{n^2}$ $= n^2$

4) $\frac{u^8}{u^2}$ $= u^6$

5) $\frac{q^9}{q^6}$

6) $\frac{g^6}{g^3}$

7) $\frac{b^9}{b^4}$ $= b^5$

10) $\frac{k^{10}}{k^4}$ $= k^6$

13) $\frac{m^8}{m^3}$ $= m^5$

16) $\frac{y^8}{y^5}$ $= y^3$

17) $\frac{z^7}{z^5}$ $= z^2$

18) $\frac{p^6}{p^4}$ $= p^2$

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Name: _____ Score:

Quotient Rule

Algebra: M1

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{4s^{-3}t^{-4}}{8s^{6}t^{8}}$

2) $\frac{3u^{8}v^{4}}{7u^{5}v^{2}}$

3) $\frac{9p^{5}q^{-2}}{5p^{-3}q^{6}}$

4) $\frac{7a^{-3}b^{9}}{2a^{2}b^{-5}}$

5) $\frac{4l^{9}m^{4}}{}$

6) $\frac{r^{-4}s^{5}}{s^{-9}}$

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7) $\frac{9v^{-10}w^{4}}{7v^{3}w^{10}}$

$\frac{^{-7}n^{5}}{^{-4}n^{-5}}$

10) $\frac{2k^{5}l^{-10}}{8k^{9}l^{-5}}$

$\frac{^{5}r^{-4}}{l^{6}r^{7}}$

13) $\frac{8^{w}8^{6}}{8^{-w}8^{2}}$

$\frac{z^{10}}{z^{5}}$

16) $\frac{8cd^{9}}{2c^{-8}d^{4}}$

17) $\frac{4mn^{9}}{m^{6}n}$

18) $\frac{p^{-6}q^{2}}{8p^{10}q^{-5}}$

Name: _____ Answer key Score:

Quotient Rule

Algebra: M1

1) $\frac{4s^{-3}t^{-4}}{8s^6t^8}$

$= \frac{1}{2s^9t^{12}}$

2) $\frac{3u^8v^4}{7u^5v^2}$

$= \frac{3u^3v^2}{7}$

3) $\frac{9p^5q^{-2}}{5p^{-3}q^6}$

$= \frac{9p^8}{5q^8}$

4) $\frac{7a^{-3}b^9}{2a^2b^{-5}}$

$= \frac{7b^{14}}{2a^5}$

5) $\frac{4l^9m^4}{}$

6) $\frac{r^{-4}s^5}{}$

s^{14}

7) $\frac{9v^{-10}w^4}{7v^3w^{10}}$

$= \frac{9}{7v^{13}w^6}$

$\frac{^{-7}n^5}{^{-4}n^{-5}}$

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

10) $\frac{2k^5l^{-10}}{8k^9l^{-5}}$

$= \frac{1}{4k^4l^5}$

$\frac{^5r^{-4}}{l^6r^7}$

$\frac{7}{lr^{11}}$

13) $\frac{8^w8^6}{8^{-w}8^2}$

$= 8^{2w+4}$

$\frac{z^{10}}{z^5}$

z^5

16) $\frac{8cd^9}{2c^{-8}d^4}$

$= 4c^9d^5$

17) $\frac{4mn^9}{m^6n}$

$= \frac{4n^8}{m^5}$

18) $\frac{p^{-6}q^2}{8p^{10}q^{-5}}$

$= \frac{q^7}{8p^{16}}$

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Name: _____ Score:

Quotient Rule

Algebra: M2

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{3k^2l^{-8}}{6k^7l^{-2}}$

2) $\frac{2b^{-3}c^{-6}}{7b^{-5}c^{-3}}$

3) $\frac{5q^{-3}r^{-2}}{8q^{-2}r^6}$

4) $\frac{9^c9^2}{9^{-c}9^7}$

5) $\frac{3w^2x^{10}}{}$

6) $\frac{y^8z^8}{}$

7) $\frac{9cd^7}{3c^{-5}d^2}$

$\frac{q^3}{q^{-2}}$

10) $\frac{2s^{-2}t^{-3}}{4s^5t^5}$

$\frac{^3q^{-6}}{^{-5}q^5}$

13) $\frac{4a^{-5}b^{10}}{7a^3b^{-6}}$

$\frac{^{-6}s^3}{^4s^{-7}}$

16) $\frac{7v^{-8}w^5}{6v^2w^6}$

17) $\frac{8g^{-6}h^2}{9g^{-4}h^5}$

18) $\frac{m^{-10}n^2}{3m^{-3}n^{-6}}$

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Name: _____ Answer key Score:

Quotient Rule

Algebra: M2

1) $\frac{3k^2l^{-8}}{6k^7l^{-2}}$

$= \frac{\mathbf{1}}{\mathbf{2k^5l^6}}$

2) $\frac{2b^{-3}c^{-6}}{7b^{-5}c^{-3}}$

$= \frac{\mathbf{2b^2}}{\mathbf{7c^3}}$

3) $\frac{5q^{-3}r^{-2}}{8q^{-2}r^6}$

$= \frac{\mathbf{5}}{\mathbf{8qr^8}}$

4) $\frac{9^c9^2}{9^{-c}9^7}$

$= \mathbf{9^{2c-5}}$

5) $\frac{3w^2x^{10}}{8w^{-6}x^{-4}}$

6) $\frac{y^8z^8}{x^6z}$

z^7

7) $\frac{9cd^7}{3c^{-5}d^2}$

$= \mathbf{3c^6d^5}$

$\frac{q^3}{q^{-2}}$

$\frac{l^5}{p^{11}}$

10) $\frac{2s^{-2}t^{-3}}{4s^5t^5}$

$= \frac{\mathbf{1}}{\mathbf{2s^7t^8}}$

$\frac{^3q^{-6}}{^{-5}q^5}$

$\frac{p^8}{l^{11}}$

13) $\frac{4a^{-5}b^{10}}{7a^3b^{-6}}$

$= \frac{\mathbf{4b^{16}}}{\mathbf{7a^8}}$

$^{-6}s^3$

$^4s^{-7}$

$\frac{0}{2}$

16) $\frac{7v^{-8}w^5}{6v^2w^6}$

$= \frac{\mathbf{7}}{\mathbf{6v^{10}w}}$

17) $\frac{8g^{-6}h^2}{9g^{-4}h^5}$

$= \frac{\mathbf{8}}{\mathbf{9g^2h^3}}$

18) $\frac{m^{-10}n^2}{3m^{-3}n^{-6}}$

$= \frac{\mathbf{n^8}}{\mathbf{3m^7}}$

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Name: _____ Score:

Quotient Rule

Algebra: D1

Use quotient rule and simplify. Write your answers with positive exponents.

1) $\frac{9x^{-1}y^{-4}z^{7}}{4xy^{10}z^{10}}$

2) $\frac{3a^{3}b^{8}c^{-7}}{6a^{-2}b^{7}c^{5}}$

3) $\frac{2p^{-7}q^{-2}r^{5}}{8pq^{3}r^{6}}$

4) $\frac{4u^{-7}vw^{-2}}{u^{-10}v^{8}w^{-10}}$

5) $\frac{5^{m}5^{6}5^{3}}{}$

6) $\frac{8x^{4}y^{-9}}{^{0}y^{-4}}$

7) $\frac{b^{-3}c^{-3}d^{-2}}{5b^{-8}c^{-4}d^{2}}$

$\frac{6^{-4}6^{-3}}{^{r}6^{8}6^{7}}$

10) $\frac{3w^{9}x^{-2}y^{-2}}{7w^{-2}x^{-1}y^{-9}}$

$\frac{^{4}l^{-2}m^{3}}{^{9}l^{8}m^{3}}$

13) $\frac{9^{u}9^{8}9^{-3}}{9^{-4}9^{-u}9^{-6}}$

$\frac{^{3}q^{-10}}{^{3}q^{4}r^{-1}}$

16) $\frac{3r^{-7}s^{-2}}{9qr^{9}s^{-8}}$

17) $\frac{7a^{2}b^{5}}{9a^{3}b^{6}}$

18) $\frac{7b^{-7}c^{2}d^{3}}{4c^{-8}d^{5}}$

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Name: _____ Answer key Score:

Quotient Rule

Algebra: D1

1) $\frac{9x^{-1}y^{-4}z^{7}}{4xy^{10}z^{10}}$

$= \frac{9}{4x^{2}y^{14}z^{3}}$

2) $\frac{3a^{3}b^{8}c^{-7}}{6a^{-2}b^{7}c^{5}}$

$= \frac{a^{5}b}{2c^{12}}$

3) $\frac{2p^{-7}q^{-2}r^{5}}{8pq^{3}r^{6}}$

$= \frac{1}{4p^{8}q^{5}r}$

4) $\frac{4u^{-7}vw^{-2}}{u^{-10}v^{8}w^{-10}}$

$= \frac{4u^{3}w^{8}}{v^{7}}$

5) $\frac{5^{m}5^{6}5^{3}}{5^{-5}5^{-m}5^{-4}}$

6) $\frac{8x^{4}y^{-9}}{4x^{10}y^{-4}}$

$= \frac{2}{x^{6}y^{5}}$

7) $\frac{b^{-3}c^{-3}d^{-2}}{5b^{-8}c^{-4}d^{2}}$

$= \frac{b^{5}c}{5d^{4}}$

$\frac{6^{-4}6^{-3}}{r6^{8}6^{7}}$

$\frac{1}{2r+22}$

10) $\frac{3w^{9}x^{-2}y^{-2}}{7w^{-2}x^{-1}y^{-9}}$

$= \frac{3w^{11}y^{7}}{7x}$

$\frac{^{4}l^{-2}m^{3}}{^{9}l^{8}m^{3}}$

$\frac{3}{^{5}l^{10}}$

13) $\frac{9^{u}9^{8}9^{-3}}{9^{-4}9^{-u}9^{-6}}$

$= 9^{2u+15}$

$\frac{^{3}q^{-10}}{^{3}q^{4}r^{-1}}$

$\frac{8r}{3p^{5}q^{14}}$

16) $\frac{3r^{-7}s^{-2}}{9qr^{9}s^{-8}}$

$= \frac{s^{6}}{3qr^{16}}$

17) $\frac{7a^{2}b^{5}}{9a^{3}b^{6}}$

$= \frac{7}{9ab}$

18) $\frac{7b^{-7}c^{2}d^{3}}{4c^{-8}d^{5}}$

$= \frac{7c^{10}}{4b^{7}d^{2}}$

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Name: _____ Score:

Quotient Rule

Algebra: D2

Use quotient rule and simplify. Write your answers in positive exponents.

1) $\frac{8^d 8^{-7} 8^{-5}}{8^2 8^{-d} 8^3}$

2) $\frac{7r^{-6}s^{-4}t^{-2}}{9r^4s^9t^{-8}}$

3) $\frac{2p^5q^{-8}}{6p^3q^6r^{-4}}$

4) $\frac{8r^{-5}s^{-4}}{6qr^6s^{-7}}$

5) $\frac{4a^3b^7}{7a^4b^9}$

6) $\frac{9b^{-6}c^3d^5}{2c^{-10}d^8}$

7) $\frac{6x^{-3}y^{-7}z^9}{3xy^4z^8}$

$\frac{-6q^{-3}r^4}{pq^5r^9}$

10) $\frac{7u^{-6}vw^{-3}}{u^{-8}v^{10}w^{-4}}$

$\frac{x^5y^{-10}}{x^8y^{-3}}$

13) $\frac{b^{-5}c^{-6}d^{-4}}{6b^{-10}c^{-2}d^7}$

$\frac{-z4^{-8}4^{-2}}{4^z4^34^5}$

16) $\frac{6w^8x^{-4}y^{-3}}{4w^{-5}x^{-3}y^{-8}}$

17) $\frac{5m^{-4}n^3}{6m^{10}n^{-8}}$

18) $\frac{7k^6l^{-8}m^5}{9k^4l^7m^{10}}$

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Name: _____ Answer key Score:

Quotient Rule

Algebra: D2

1) $\frac{8^d 8^{-7} 8^{-5}}{8^2 8^{-d} 8^3}$

$= 8^{2d-17}$

2) $\frac{7r^{-6}s^{-4}t^{-2}}{9r^4s^9t^{-8}}$

$= \frac{7t^6}{9r^{10}s^{13}}$

3) $\frac{2p^5q^{-8}}{6p^3q^6r^{-4}}$

$= \frac{p^2r^4}{3q^{14}}$

4) $\frac{8r^{-5}s^{-4}}{6qr^6s^{-7}}$

$= \frac{4s^3}{3qr^{11}}$

5) $\frac{4a^3b^7}{7a^4b^9}$

6) $\frac{9b^{-6}c^3d^5}{2c^{-10}d^8}$

$\frac{9c^{13}}{2b^6d^3}$

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7) $\frac{6x^{-3}y^{-7}z^9}{3xy^4z^8}$

$= \frac{2z}{x^4y^{11}}$

$\frac{-6q^{-3}r^4}{pq^5r^9}$

$\frac{1}{2p^7q^8r^5}$

10) $\frac{7u^{-6}vw^{-3}}{u^{-8}v^{10}w^{-4}}$

$= \frac{7u^2w}{v^9}$

$\frac{x^5y^{-10}}{x^8y^{-3}}$

$\frac{4}{x^3y^7}$

13) $\frac{b^{-5}c^{-6}d^{-4}}{6b^{-10}c^{-2}d^7}$

$= \frac{b^5}{6c^4d^{11}}$

$= \frac{}{4q^{14}rs^{14}}$

$\frac{-z4^{-8}4^{-2}}{4^z4^34^5}$

$= \frac{1}{4^{2z+18}}$

16) $\frac{6w^8x^{-4}y^{-3}}{4w^{-5}x^{-3}y^{-8}}$

$= \frac{3w^{13}y^5}{2x}$

17) $\frac{5m^{-4}n^3}{6m^{10}n^{-8}}$

$= \frac{5n^{11}}{6m^{14}}$

18) $\frac{7k^6l^{-8}m^5}{9k^4l^7m^{10}}$

$= \frac{7k^2}{9l^{15}m^5}$