1. Perform the indicated multiplication and simplify the product. Assume that the variables represent nonnegative real numbers, so that absolute value notation is not necessary.

$$(8\sqrt{39\rho})(6\sqrt{6\rho})$$

A. $139\sqrt{26\rho}$

B. $144\sqrt{26\rho}$

C. $139\rho\sqrt{26}$

D. $140\sqrt{26\rho}$

E. $138\rho\sqrt{26}$

F. $144\rho\sqrt{26}$

G. $140\rho\sqrt{26}$

H. $138\sqrt{26\rho}$

2. Perform the indicated multiplication and simplify the product. Assume that the variables represent nonnegative real numbers, so that absolute value notation is not necessary.

$$(\sqrt{2\psi} + \sqrt{8\eta})(\sqrt{2\psi} - \sqrt{8\eta})$$

A. $\sqrt{2\psi} - \sqrt{8\eta}$

B. $2\psi + 2\sqrt{2\psi}\sqrt{8\eta} + 8\eta$

C. $2\psi - 8\eta$

D. $2\psi + 8\eta$

E. $\sqrt{2\psi} + \sqrt{8\eta}$

F. $2\psi - \sqrt{8\eta}$

G. $\sqrt{2\psi} - 8\eta$

H. $2\psi - 2\sqrt{2\psi}\sqrt{8\eta} + 8\eta$

3. Simplify the division. Rationalize the denominator only if this step is necessary.

$$\sqrt{\frac{7}{4}}$$

A. $\frac{\sqrt{7}}{2}$

B. $\frac{\sqrt{7}}{\sqrt{2}}$

C. $\frac{49}{4}$

D. $\frac{\sqrt{14}}{\sqrt{2}}$

E. $\frac{\sqrt{2}}{7}$

F. $\frac{7}{2}$

G. $\frac{\sqrt{14}}{2}$

H. $\frac{7\sqrt{7}}{2}$

4. Perform the indicated multiplication and simplify the product.

$$(\sqrt{7})(5\sqrt{21})(3\sqrt{3})$$

A. 315

B. $322\sqrt{10}$

C. $319\sqrt{10}$

D. 308

E. $315\sqrt{10}$

F. $308\sqrt{10}$

G. 319

H. 322

5. Perform the indicated division by rationalizing the denominator and then simplifying. Assume that all variables represent positive real numbers.

$$\frac{238}{\sqrt{2} - 11}$$

A. $2\sqrt{2} + 22$

B. $-2\sqrt{2} + 22$

C. $-2\sqrt{11} + 4$

D. $-2\sqrt{11} - 4$

E. $2\sqrt{2} - 22$

F. $2\sqrt{11} - 4$

G. $-2\sqrt{2} - 22$

H. $2\sqrt{11} + 4$

6. Perform the indicated multiplication and simplify the product. Assume that the variables represent nonnegative real numbers, so that absolute value notation is not necessary.

$$(\sqrt{7} - \sqrt{5})^2$$

A. $12 + \sqrt{35}$

B. $2 + \sqrt{35}$

C. $12 - 2\sqrt{35}$

D. $12 + 2\sqrt{35}$

E. $2 - \sqrt{35}$

F. $2 - 2\sqrt{35}$

G. 12

H. 2

7. Simplify the division. Rationalize the denominator only if this step is necessary.

$$\frac{\sqrt[3]{4}}{\sqrt[3]{81}}$$

A. $\frac{\sqrt[3]{36}}{4}$

B. $\frac{2\sqrt[3]{36}}{3}$

C. $\frac{9}{\sqrt[3]{36}}$

D. $\frac{3\sqrt[3]{36}}{2}$

E. 9

F. $\frac{\sqrt[3]{36}}{9}$

G. $\frac{4}{\sqrt[3]{36}}$

H. 4

8. Perform the indicated multiplication and simplify the product. Assume that the variables represent nonnegative real numbers, so that absolute value notation is not necessary.

$$\sqrt[3]{7}\sqrt[3]{49}$$

A. 7

B. $7\sqrt[3]{7}$

C. $2\sqrt[3]{2}$

D. $2\sqrt[3]{4}$

E. $7\sqrt[3]{14}$

F. $7\sqrt[3]{21}$

G. $2\sqrt[3]{6}$

H. 2