**5** Topic Review

**For Items 1–2, find the value of each
expression.**

**1.** $\sqrt{3^{6}}$

**2.** $\sqrt[3]{-125}$

**3.** Simplify

**a.** $\sqrt[4]{16x^{4}y^{8}}$

**4.** Multiply $(\sqrt{b}+3)(\sqrt{b}-3)$

**5.** Which of the following is
equivalent to $\frac{4}{1+\sqrt{7}}$

**A** $\frac{2\sqrt{7}+2}{3}$

**B** $\frac{2\sqrt{7}+2}{-3}$

**C** $\frac{2\sqrt{7}-2}{-3}$

**D** $\frac{2\sqrt{7}-2}{3}$

**6.** The graph of $y=\sqrt{x}$ has been
translated to the left 2 units and
up 1 unit. What is the equation of
the translated graph?

**A** $y=1+\sqrt{x+2}$

**B** $y=1+\sqrt{x-2}$

**C** $y=-1+\sqrt{x-2}$

**D** $y=-1-\sqrt{x+2}$

**7.** The function *a* has domain *x* ≥ −2
and range *y* ≤ 1. What are the
domain and range of *a*−1?

Domain:

Range:

**8.** Graph the function $f\left(x\right)=\sqrt{x}-1$



**9.** Which of the following are real
numbers? Select all that apply.

**A** **C** $\sqrt[4]{-16}$

**B** **D** $\sqrt[3]{-8}$



**10.** The volume of a cube is 2.8 m3. Find the length of its edge to the nearest tenth of a meter.

**11.** Multiply $\sqrt{3}(\sqrt{3}+\sqrt{27)}$

 HINT: Use a calculator

**12.** Which of the following is a
decreasing function?

**A** $f\left(x\right)= \sqrt{x^{2}}$

**B**

**C**

**D**

**13.** Let and *g*(*x*) = $7-x$ What
is the domain of *f* ◦ *g*?

**A** x > 7 **C** x > 7

**B** x < 7 **D** x < 7

**14.** If $a\left(x\right)=3-9x$ what is an equation
for $a^{-1}(x)$?

**A** $a^{-1}=\frac{x-3}{9}$

**B** $a^{-1}=\frac{x-3}{-9}=\frac{3-x}{9}$

**C** $a^{-1}=\frac{3-x}{-9}=\frac{x-3}{9}$

**D** $a^{-1}=\frac{x+3}{9}$

**15.** Evaluate the expression $\sqrt{x^{2}-5x+22}$ when $x=-2$

**16.** Some values of *f*(*x*) are given in the
table. Find the value of *f*−1(3).

|  |  |  |  |
| --- | --- | --- | --- |
| ***x*** | 2 | 3 | -3 |
| ***f*(*x*)** | 3 | 1 | 5 |

**17.** A cylindrical pipe is 25 ft long
and has a volume of 900 ft3. Find
its approximate diameter to the
nearest hundredth of a foot. V = Bh

**A** 3.39 ft **C** 6.77 ft

**B** 6 ft **D** 12 ft

**18.** Solve $(x-3)^{\frac{2}{5}}=(x-1)^{\frac{1}{5}}$



**19**. $\sqrt{x}+\sqrt{x+5}=5$

**20.** A store increases all its prices by
20% and then offers a $50 discount
on all purchase prices. Let *x*represent the price in dollars. Let
*f*(*x*) = 1.20*x* represent the increase
and *g*(*x*) = *x* − 50 represent the
discount. Which function can the
store manager use to find the final
purchase prices?

**A** *f* + *g* **C**

**B** *f* × *g* **D** $\frac{f}{g}$

**21.** Solve

**A** 0 **C** 1.25

**B** 1 **D** 2

**22.** The volume of a sphere is
and the radius is
increasing at 5 mm per second. The
function *r*(*t*) = 5*t* gives the radius
at time *t* seconds. Which function
gives the volume at time *t*?

**A**

**B**

**C** (*r* + *V*)(*t*)

**D** (*V* ∙ *r*)(*t*)

**23.** Solve the equation $\sqrt{x^{2}}=x$



All values of x |