

# Algebra 2 Practice Test MR. T ch 7

## Multiple Choice

$$1. \sqrt{6} \cdot \sqrt{2} = \sqrt{3} \cdot \sqrt{2} \cdot \sqrt{2} = 2\sqrt{3}$$

A ✓

$$2. \frac{\sqrt[3]{270x^{20}}}{\sqrt[3]{5x^4}} \cdot \frac{\sqrt[3]{(5x^2)^4}}{\sqrt[3]{(5x)^2}}$$

$$= \frac{\sqrt[3]{3^3 \cdot 5^3 \cdot 2(x^7)^3 x}}{\sqrt[3]{(5x)^3}} \cdot \frac{15x^7 \sqrt[3]{2x}}{5x}$$

$$= 3x^6 \sqrt[3]{2x} \quad \underline{\underline{B}} \checkmark$$

$$3. \frac{\sqrt{3}-\sqrt{6}}{\sqrt{3}+\sqrt{6}} \cdot \frac{\sqrt{3}-\sqrt{6}}{\sqrt{3}-\sqrt{6}}$$

$$= \frac{3-2\sqrt{18}+6}{3-6} = \frac{9-6\sqrt{2}}{-3}$$

$$= -3+2\sqrt{3} \quad \underline{\underline{C}} \checkmark$$

$$4. 8^{\frac{4}{3}} = 2^{3 \cdot \frac{4}{3}} = 2^4 = 16$$

C ✓

$$5. (7-\sqrt{2})(8+\sqrt{2}) = 56 - 8\sqrt{2} + 7\sqrt{2} - 2$$

$$= 54 - \sqrt{2}$$

B ✓

$$6. (-5-\sqrt{3})^2 = (-5-\sqrt{3})(-5-\sqrt{3})$$

$$= 25 + 5\sqrt{3} + 5\sqrt{3} + 3$$

$$= 28 + 10\sqrt{3}$$

A ✓

$$7. \frac{\text{Total}}{\text{Longer}} = \frac{5}{3} = \frac{\sqrt{150}}{x}$$

$$5x = 3\sqrt{150}$$

$$5x = 3 \cdot \sqrt{25} \cdot \sqrt{6}$$

$$5x = 3 \cdot 5 \cdot \sqrt{6}$$

$$x = 3\sqrt{6} \quad \underline{\underline{B}} \checkmark$$

$$8. (8a^{-6})^{-\frac{2}{3}} = 8^{-\frac{2}{3}} a^{-6 \cdot \frac{2}{3}}$$

$$= 8^{-\frac{2}{3}} \cdot a^4 = \frac{a^4}{8^{\frac{2}{3}}} = \frac{a^4}{4}$$

A ✓

$$9. \sqrt{x+10} - 7 = -5$$

$$\sqrt{x+10} = 2$$

$$x+10 = 4$$

$$x = -6$$

D ✓

$$10. \frac{3x-6}{x-2} = \frac{3(x-2)}{x-2} = 3$$

D = all Real numbers except 2.

B ✓

$$11. \frac{3(3x^2+10x-8)}{x+4} - \frac{3(3x^2+12)(2x-8)}{x+4}$$

$$= \frac{3((3x^2+12x)+(-2x-8))}{x+4}$$

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

$$= \frac{3(3x-2)(x+4)}{x+4} = 9x-6$$

D ✓

$$12. f(g(x)) = 4 + 5(2x-1)$$

$$= 4 + 10x - 5$$

$$= \underline{10x - 1}$$

$$g(f(x)) = 2(4+5x) - 1$$

$$= 8 + 10x - 1$$

$$= \underline{10x + 7}$$

A

$$16. (f \circ g)(-5) = -4(-5) + 3$$

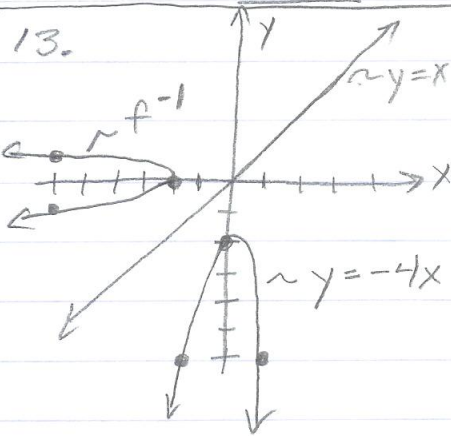
$$= 20 + 3 = 23$$

$$= -2(23) - 7$$

$$= -46 - 7$$

$$= \underline{-53}$$

B



B

x	y
0	-2
-1	-6

$$17. 75(100) = \frac{S^2}{30.25}$$

$$(30.25)75 = \frac{S^2}{30.25} \cdot 30.25$$

$$\sqrt{S^2} = \sqrt{2268.75}$$

$$S = 47.6 \approx 48 \text{ mph}$$

C

$$18. h = \frac{0.00252(90)^{2.27}}{1.4}$$

$$= \underline{49.1}$$

$$14. f(x) = (8-2x)^2$$

$$y = (8-2x)^2$$

$$x = (8-2y)^2$$

$$(8-2y)^2 = x$$

$$8-2y = \pm\sqrt{x}$$

$$-2y = -8 \pm \sqrt{x}$$

$$y = \frac{8 \pm \sqrt{x}}{2}$$

B

$$19. a) f(x) = 375x$$

$$b) g(x) = 40x$$

$$c) f(x) + g(x) = 375x + 40x$$

$$= 415x$$

$$20. a) \sqrt{x+14} = x-16$$

$$x+14 = x^2 - 32x + 256$$

$$x^2 - 33x + 242 = 0$$

$$(x-22)(x-11) = 0$$

$$\boxed{x=22} \quad x=11$$

b) It may not be a real solution.

$$15. (3x+2)(7x+6)$$

$$21x^2 + 18x + 14x + 12$$

$$21x^2 + 32x + 12$$

$$D = \{x | x \in \mathbb{R}\}$$

C

$$21a) A = 4\pi r^2$$

$$r^2 = \frac{A}{4\pi}$$

$$r = \frac{\sqrt{A}}{\sqrt{4\pi}} = \frac{\sqrt{A}}{2\sqrt{\pi}} \cdot \frac{\sqrt{\pi}}{\sqrt{\pi}}$$

$$r = \frac{\sqrt{A\pi}}{2\pi}$$

$$b) r = \frac{\sqrt{113 \cdot \pi}}{2\pi} = 2.9987$$

$$r \approx \underline{\underline{3 \text{ in}}}$$

22. a)  $p$  = original price

$$d(p) = p - 0.25p$$

$$d(p) = 0.75p \quad (\otimes)$$

$$c(p) = p - 30 \quad (\otimes)$$

$$b) c(d(p)) = 0.75p - 30$$

$$c) d(c(p)) = 0.75(p - 30) \\ = 0.75p - 22.5$$

$$d) d(c(p)) - c(d(p))$$

$$= [0.75(150) - 22.5] - [0.75(150) - 30]$$

$$= 90 - 82.5$$

$$= \$7.50$$

e) when you apply the discount 1st you are only getting 75% of the coupon off.