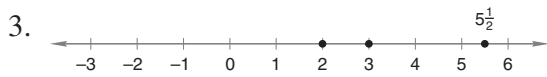# Homeschool Placement Test Answers

PART I

1. $1\frac{5}{24}$

2. Area $= 4\pi$ units^2

3.

4. $\dfrac{3}{10}$

5. $2N + 5$

6. 12 girls

7. $32.00

8. 5

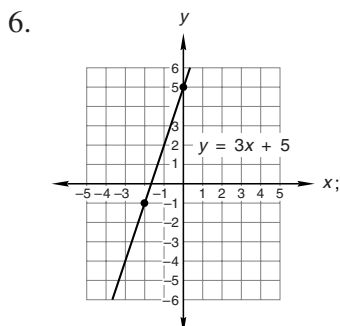9. [from left to right] 0.375, 37.5%

10. 150 new cars per month

PART II

1. $-28 + \sqrt{3}$

2. $-\dfrac{6}{5}$

3. $m^5 x^{-2} y^3$

4. $x = \dfrac{1}{2}$

5. 200 pennies, 250 nickels

6.

    slope $= 3$; y-intercept $= 5$

7. (a) Perimeter $= (16 + 4\pi)$ meters;
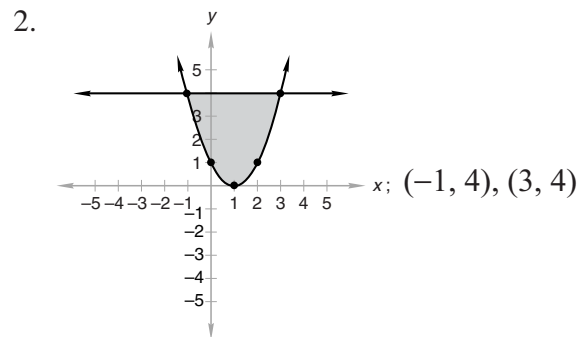   (b) Area $= (24 + 8\pi)$ meters^2;
   (c) Volume $= (288 + 96\pi)$ meters^3

8. range $= 25$; mean $= 82$; median $= 85$; mode $= 70$

9. $N = -3$

10. $x = -3, 5$

PART III

1. $\dfrac{1}{3} \pm \dfrac{\sqrt{2}}{3} i$

2.
   x; $(-1, 4), (3, 4)$

3. $\left(\dfrac{34}{7}, \dfrac{-11}{7} \right)$

4. $\dfrac{23\sqrt{6}}{6}$

5. $x = 8$

6. $x = -20$

7. $\dfrac{x + 5}{x + 3}$

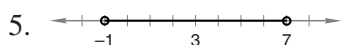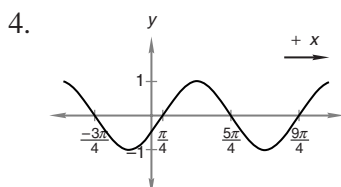8. $-4, -3, -2$ or $-3, -2, -1$

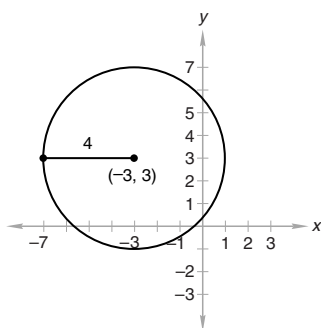9. 24 ways

10. $y = \dfrac{-3}{2} x + 4$

PART IV

1. $x^2 + 2xh + h^2$

2. $\dfrac{1}{2}$; $\dfrac{\sqrt{3}}{2}$

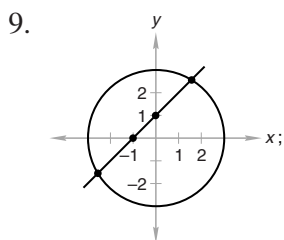3. $\dfrac{-1}{x(x + h)}$

4.

5.

6. radius $= 4$; center $= (-3, 3)$;

7. $x = \dfrac{-3}{2} + \dfrac{\sqrt{401}}{2}$

8. $x = \dfrac{2\sqrt{3}}{3}h$

9.

$\left(\dfrac{-1}{2} + \dfrac{\sqrt{17}}{2}, \; \dfrac{1}{2} + \dfrac{\sqrt{17}}{2}\right),$

$\left(\dfrac{-1}{2} - \dfrac{\sqrt{17}}{2}, \; \dfrac{-1}{2} - \dfrac{\sqrt{17}}{2}\right)$

10. $\dfrac{\cos^3 x + \sin^3 x}{\cos x + \sin x}$

$= \dfrac{(\cos x + \sin x)(\cos^2 x - \cos x \sin x + \sin^2 x)}{\cos x + \sin x}$

$= \cos^2 x - \cos x \sin x + \sin^2 x$

$= 1 - \sin x \cos x$

11. $\sqrt{(x - 1)^2 + (y - 2)^2}$

$\quad + \sqrt{(x - 3)^2 + (y - 4)^2} = 10$

12.

STATEMENTS	REASONS
1. $\overline{XZ} \cong \overline{YZ}$	1. Given
2. $\triangle XYZ$ is isosceles	2. Definition of isosceles triangle
3. $\angle ZXY \cong \angle ZYX$	3. Base angles of an isosceles triangle are congruent.
4. $\angle XUY$ is a right angle; $\angle YVX$ is a right angle	4. Given
5. $\angle XUY \cong \angle YVX$	5. Right angles are congruent.
6. $\angle UYX \cong \angle VXY$	6. AA $\longrightarrow$ AAA
7. $\overline{XY} \cong \overline{XY}$	7. Reflexive axiom
8. $\triangle XUY \cong \triangle YVX$	8. AAAS congruency postulate
9. $\overline{XV} \cong \overline{YU}$	9. CPCTC