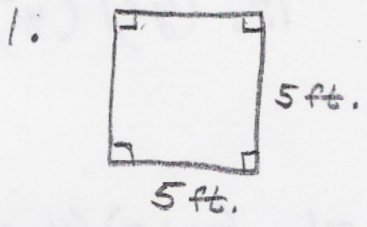
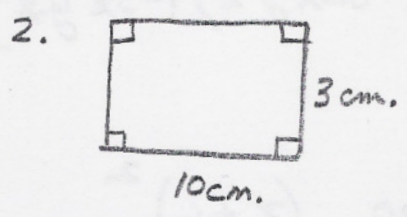


SHOW ALL WORK on this test or on separate! Circle final answers. CALCULATORS—YES!!

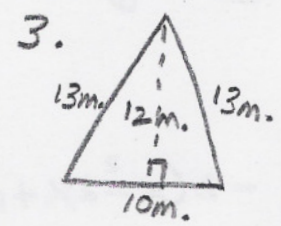
In 1-6, find the perimeter and area of each figure.
 For circles, give the exact value using π , then
 use $\pi = 3.14$ to give an approximation. GIVE UNITS!



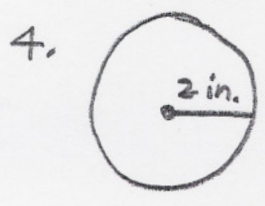
P = _____
 A = _____



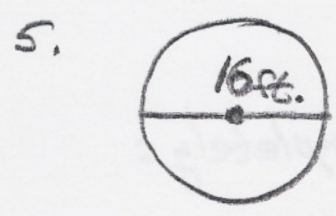
P = _____
 A = _____



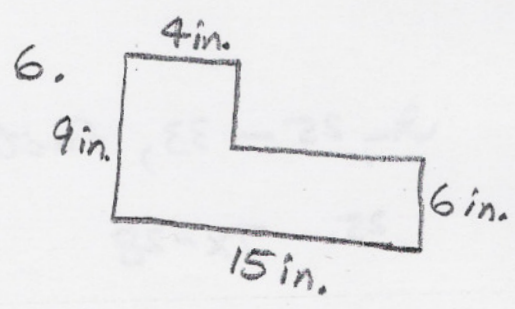
P = _____
 A = _____



P = _____
 A = _____



P = _____
 A = _____



P = _____
 A = _____

7. Find the volume of a box that is 3 feet long, 2 feet wide, and 7 feet high. Give units.
8. Find the volume of a cylinder with radius 3 feet and height 8 feet.
9. Find the volume of a cylinder with diameter 3 feet and height 8 feet.
10. Find the perimeter of a poster that is 20 in. by 24 in.
11. If it takes 166 square yards of material to make a blanket, how much material is needed to make 12 blankets? If material costs \$4.95 per square yard, how much will it cost to make the 12 blankets?

In 12 - 24, simplify completely.

$$12. x^3 \cdot x^2 \cdot x \quad 13. (y^6)^3 \quad 14. (3x^2)^3 \quad 15. (4xy^2z^3)^2$$

$$16. (-3xy)^3 \quad 17. (2xy^2z)^2(-3x^2yz^2) \quad 18. (y^3)^3(y^2)^5$$

$$19. -2(x^2 - 2x + 6) \quad 20. (x + 6)^2 \quad 21. (x + 5)(x - 5)$$

$$22. (2x - 3)(x + 4) \quad 23. (x + 2)(x^2 + 2x + 1) \quad 24. -5x(x^2 - 2x + 1)$$

In 25 - 33, factor completely:

$$25. 7x - 28 \quad 26. 34x + 17y \quad 27. 8x^2 - 16x$$

$$28. 4x^3 + 8x \quad 29. 45x^3 + 30x^2 \quad 30. 16x^2 - 48x^3$$

$$31. x^{10} + 6x^3 \quad 32. 16x^2y^3 - 12x^3y^2 \quad 33. 5a(b - 7) + 2(b - 7)$$

1. $P = 4s$
 $= 4(5\text{ft})$
 $= 20\text{ft}$

$A = s^2$
 $= 5\text{ft} \cdot 5\text{ft}$
 $= 25\text{ft}^2$

2. $P = 2w + 2L$
 $= 2(3) + 2(10)$
 $= 6 + 20$
 $= 26\text{cm}$

$A = LW$
 $= (3\text{cm})(10\text{cm})$
 $= 30\text{cm}^2$

3. $P = a + b + c$
 $= 10 + 13 + 13$
 $= 36\text{m}$

$A = \frac{1}{2}ab$
 $= \frac{1}{2}(10\text{m})(12\text{m})$
 $= \frac{1}{2}(120) = 60\text{m}^2$

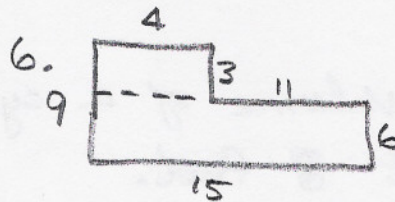
4. $P = 2\pi r$
 $\text{or } \pi d$
 $= 2\pi(2\text{in})$
 $= 4\pi\text{in}$
 $\approx 12.56\text{in}$

$A = \pi r^2$
 $= \pi \cdot 2^2$
 $= 4\pi\text{in}^2$
 $\approx 12.56\text{in}^2$

5. $P = \pi d \text{ or } 2\pi r$

$P = \pi \cdot 16$
 $= 16\pi\text{ft} \approx 50.24\text{ft}$

$A = \pi r^2$
 $= \pi \cdot 8^2$
 $= 64\pi\text{ft}^2 \approx 200.96\text{ft}^2$



$P = 9 + 15 + 6 + 11 + 3 + 4 \text{ or } P = 2w + 2L$
 $= 48\text{in}$
 $= 2(9) + 2(15)$
 $= 18 + 30$

$A = 4 \times 3 + 6 \times 15$
 $= 12\text{in}^2 + 90\text{in}^2$
 $= 102\text{in}^2$

$\text{or } 9 \times 15 - 3 \times 11$
 $135 - 33 = 102\text{in}^2$

$= 18 + 30$
 $= 48\text{in}$

7. $V = LWH$
 $= 3' \cdot 2' \cdot 7'$
 $= 42\text{cuft}$
 $\text{or } 42\text{ft}^3$

8. $V = \pi r^2 h$
 $= \pi \cdot 3^2 \cdot 8$
 $= 72\pi\text{ft}^3$
 $\approx 226.08\text{ft}^3$

9. $V = \pi r^2 h$
 $= \pi \cdot (1.5)^2 \cdot 8$
 $= \pi \cdot 18$
 $= 18\pi\text{ft}^3$
 $\approx 56.52\text{ft}^3$

10. $P = 2w + 2L$
 $= 2(20) + 2(24)$
 $= 40 + 48$
 $= 88\text{in}$

11. material for 12
 $= (1.6)(12)$
 $= 19.2\text{sqyd}$
 $\times 4.95$
 $= 95.04$

12. $x^3 \cdot x^2 \cdot x^1$
 $= x^6$

13. $(4y)^3$
 $= 64y^3$

14. $(3x^2)^3$
 $= 27x^6$

15. $(4xy^2z)^3$
 $= 64x^3y^6z^3$

19. $-2(x^2 - 2x + 6)$
 $= -2x^2 + 4x - 12$

16. $(-3xy)^3$
 $= -27x^3y^3$

17. $(2xy^2z)^2 (-3x^2yz^2)^2$
 $= 4x^2y^4z^2 \cdot 9x^4y^2z^4$
 $= 36x^6y^6z^6$

18. $(y^3)^3 (y^2)^5$
 $= y^9 \cdot y^{10}$
 $= y^{19}$

20. $(x+6)(x+6)$
 $= x^2 + 12x + 36$

21. $(x+5)(x-5)$
 $= x^2 - 25$

22. $(2x-3)(x+4)$
 $= 2x^2 + 8x - 3x - 12$
 $= 2x^2 + 5x - 12$

23. $(x+2)(x^2 + 2x + 1)$
 $= x^3 + 2x^2 + x + 2x^2 + 4x + 2$
 $= x^3 + 4x^2 + 5x + 2$

24. $-5x(x^2 - 2x + 3)$
 $= -5x^3 + 10x^2 - 15x$

25. $7(x-4)$
 $= 7x - 28$

28. $4x(x^2 + 2)$
 $= 4x^3 + 8x$

33. $(6-7)(5a+2)$
 $= -1(5a+2) = -5a-2$

27. $8x(x-2)$
 $= 8x^2 - 16x$

29. $15x^2(3x+2)$
 $= 45x^3 + 30x^2$

31. $x^3(x^2 + 6)$
 $= x^5 + 6x^3$

30. $16x^2(1-3x)$
 $= 16x^2 - 48x^3$

32. $4x^2(4-3x)$
 $= 16x^2 - 12x^3$